













# MEDICAL CLASSICS

SELECTED AND REVISED

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THE  
INFLUENCE  
OF  
TROPICAL CLIMATES  
ON  
EUROPEAN CONSTITUTIONS.

TO WHICH IS ADDED  
**Tropical Hygiene;**  
OR THE  
PRESERVATION OF HEALTH  
IN  
**ALL HOT CLIMATES,**  
(ADAPTED TO GENERAL PERUSAL.)

By JAMES JOHNSON, M. D.

Author of "The Influence of the Atmosphere on the Health and Functions of the Human Frame," and Editor of the *Medical Register*; or Quarterly Journal of Medical and Surgical Science."

FROM THE LATEST LONDON EDITION  
GREATLY IMPROV'D.

VOL. II.

Haud ignarus mali miseris succurrere disco.

Virg.

Study well the clime,  
Mould to its manners your obsequious frame  
And mitigate those ills you cannot shun.

Armstrong.

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## MEDITERRANEAN.

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### General observations on the Climate.

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SEC. I.—When we cast an eye along the beautiful shores of this great inland ocean, and survey the classic scenes which present themselves at every step—when we recollect that in peace or in war, the British flag, commercial or belligerent, waves in every port, and off every promontory, from the pillars of Hercules to the shores of the Hellespont, we cannot but acknowledge that the medical topography, the *Endemic*, and the contagious diseases of this quarter of the globe are not less interesting to Britons than those of either the Eastern or Western Hemisphere. The more intimately we become acquainted with the various climates of the earth we inhabit, the more we shall be convinced that the “balance of comfort” is not so unequally poised as some querulous philosophers imagine. The Eastern world has its *He-*

*patitis*—the Western its *causus*—the Northern shores of the Mediterranean have their “*pestilential fevers*”—the Southern and Eastern are annually desolated by the *plague!* If “Happy England” knows not these but by report, or in their *sequelæ*, she every year sacrifices nearly *sixty thousand* of her inhabitants at the altar of *Phthisis!*

In exploring this interesting track, the labours of many must be united in *analytical* concentration; and it is upon this plan, hitherto unattempted, that I hope to converge into one focus, a stronger body of light on MEDITERRANEAN DISEASES than has ever yet been collected through a single medium.

Before entering on localities, however, it may not be improper to make a few general observations on this extensive inlet.

Placed between the burning sands of Africa on one side, and the Alps and Pyrenees on the other, the Mediterranean skies are alternately parched by the South-east—Chilled by the North-west, or stifled by the sirocco winds. Thus from Barcelona to Genoa, the iron-bound Coast presents a succession of dreary mountains and craggy rocks, the tops of the *former* being frequently covered with snow, from the beginning of March till the end of May. From these the frigid Euroclydons descend in whirlwinds upon the contiguous ocean; while at other times, the sirocco breaths fire from the deserts of Sahara and Lybia. During the continuance of this wind, all nature appears to languish; vegetation withers and dies—the beasts of the field droop; while those

who are strongly susceptible to electrical changes in the air, such as precede and attend a thunder storm, will easily understand the effects of the sirocco on the human frame, as an increased degree of the sensations which they then experience. The animal spirits seem too much exhausted to admit of the least bodily exertion, and the spring and elasticity of the air, appear to be lost. The heat exceeds that of the most fervid weather in Spain or Malta. This accession of temperature is rapid—almost instantaneous; and the whole atmosphere feels as if inflamed. The pores of the skin seem at once opened, and all the fibres relaxed. It sometimes blows for several days together, at a medium heat of  $112^{\circ}$ . depressing the spirits, and so suspending the powers of digestion, that people who venture to eat a hearty supper are generally found dead next morning. Fortunately for animated nature it is commonly succeeded by the Tramontane or north wind, which, in a short time, restores the exhausted powers of animal and vegetable life.

After this description, the Mediterranean climate could hardly be set down as one that was favourable to the lungs of a Northern invalid seeking refuge from the atmospherical vicissitudes of England. Yet numerous writers describe this portion of the globe as enjoying a happy medium between intertropical heat and hyperborean cold. But we must not calculate on heat, cold, or evenness of temperature by the parallel of latitude; on the contrary, as a modern author has justly observed, “storms most tremendous occasionally burst from

the mountains, with the most piercing coldness, on many of the boasted retreats along the Northern shores of the Mediterranean." But from words we shall proceed to facts. The following table shews the comparative receipt of pulmonic and other diseases into the hospitals of Minorca, Malta, and Gibraltar, from the Mediterranean fleet, during the years 1810—11—12, from official returns:

Diseases.	Malta.	Gibraltar.	Minorca.	Total
	1810—11—12	1810—11—12	1810—11—12	
Phthisis Pulmonalis	149	187	119	455
Pulmonic Inflammation.....	52	51	37	140
Fever.....	747	138	357	1242
Dysentery.....	36	79	60	175
<hr/>				
Total				
Phthisis and Pneumonia.....	202	238	156	596
Other Complaints..	883	217	417	1517

Ratio of Pulmonic to the other great complaints, 1 to  $2\frac{1}{2}$ .

The foregoing table shews only the comparative receipts into hospital of the grand divisions of disease. The rate of mortality is quite another thing. Out of 455 cases of Phthisis alone, 151 died before the remainder could be shipped off for England, where, in all probability, most of them perished! Whereas out of 1242 cases of fever, only 58 died, and a very small number were invalidated. This authentic document will speak

volumes on the climate of the Mediterranean. In no other possible way could so fair a calculation be made, as to the *relative* prevalence of complaints, as in a fleet, where the crews of ships are subjected to a similarity of regimen, occupation, cloathing, and discipline unknown in civil life, or even in the best regulated army.

That the abrupt vicissitudes of the climate under consideration were extremely productive of pulmonary consumption, the government, and the medical officers of our fleets and hospitals have long been aware; but in private practice, this is little known; and many valuable lives are annually sacrificed by the very means designed to prolong their range.

An ingenious little Thesis has lately been written in latin by Dr. Sinclair, formerly a surgeon in the Royal Navy, on the Mediterranean Phthisis, from which I shall translate and condense a few passages.

*Symptoms.*—Dr. S. divides the disease into two stages, the inflammatory and suppurative. The first often advances on the patient with insidious pace, and without giving much alarm:—\*frequently with symptoms of catarrh, or slight pleurisy, as rigors, heats, and chills alternately—thirst—cough—fever. By degrees

\* Dr. Burnett while speaking of pneumonia in the Mediterranean, observes that—“ He wishes to caution the practitioner against the *insidious form of the milder attack of this disease*, which is but too often considered of little moment—as a catarrh—and the cure entrusted to small doses of antimony and a great coat—often to nature. With pain has he witnessed the effects of this treatment in the *melancholy increase of consumptive cases*, which the summer’s heat has brought before him.”—*Preface to 1st Edition.*

these symptoms become more marked, and attended with lassitude—pains in the back, loins, and limbs. To these are occasionally added, nausea, vomiting, head ach, &c. The pulse is generally from the beginning, quick, hard, and full—sometimes the contrary. Acute pains, more or less severe, now shoot in between the sixth and seventh ribs near the sternum. Sometimes this pain is complained of as deep under the breast bone—quite through to the spine—or stretching to the clavicles, or shoulder bones, with difficulty of breathing. These symptoms will often become suddenly increased, with such oppression about the praecordia, and obstruction of the vital functions as lead to the suspicion of inflammation of the heart itself or its coverings. The patient is now harrassed with a dry, irritating cough—dyspnœa, and inability to lie down. These symptoms are somewhat mitigated on the appearance of expectoration, which is rarely free, or tinged with blood. In some people, who are biliously inclined, the pain in the right hypochondrium will imitate Hepatitis, till purulent expectoration reveals the true nature of the disease.

The termination is either by resolution—suppuration with ulceration of the worst kind—or effusion.

*Resolution.*—In this case, the graver symptoms subside before the close of the first septenary period—that is, about the seventh day, the pain ceases—the pulse becomes slow—the expectoration free, whitish and thick—the skin relaxes into a gentle perspiration—the thirst is assuaged—and the appetite returns. If these salutary events do not take place before the fourteenth day, suppuration is generally the consequence.

*Suppuration.*—In many cases, although the violence of the disease is mitigated by appropriate remedies; yet a deep-seated, obtuse pain continues obstinately fixed in one side, with a sense of weight there. The difficulty of breathing remains, and the patient cannot lie down. Debility now increases fast—emaciation takes place—the pulse is easily accelerated—the expectoration from being viscid and frothy, becomes, in a few weeks, opake, yellow, or green. In short, hectic fever is established, and PHthisis carries the victim to his grave in the course of five or six months—generally towards the latter end of August or September.\*

*Post Mortem appearances.*—Vomicæ of various dimensions were very often developed. The larger contained from a few ounces to a pint of fœtid, green or yellow pus. In some cases empyema—in others, the lungs were ulcerated—beset with tubercles of different sizes, or entirely destroyed, with only a mass of tubercles remaining—and that too within six weeks after the stage of acute inflammation!

*Methodus Medendi.*—During the inflammatory period, nothing but the most decisive evacuations from the vascular system will save the structure of the lungs from that dreadful disorganization described above, and which supervenes on inflammation in the lungs in a more rapid manner, here, than in any other climate. Twenty-four or thirty ounces of blood must be immediately abstracted, and this reiterated according to the

\* Autumnus tabidis malus. Hippoc.

violence of the disease. Saline cathartics—cool air—cool drink—rigid abstinence—antimonials—blisters, &c. are to be used as secondary means. In these cases, it is not always easy to limit the extent of ulterior venesection. If we bleed *too* far, we risk effusion—if *too* little, suppuration.

*Felix qui potuit medium cognoscere tutum.*

This is a most critical and dangerous period of the disease. About the fourth or fifth day, we shall apparently have conquered all the more violent symptoms, and the patient will be considered convalescent—but all at once he is seized with darting pains in the chest—the muscles of respiration are spasmed—and strangulation is threatened by the convulsive cough! Blood must again be drawn, but with caution, for the transition from this state to irremediable effusion is awfully sudden and uncertain. Here local evacuations, and other local means may be beneficially put in requisition.

When *phthisis* approaches, nothing but a retreat from the Mediterranean before the autumn sets in, can give a shadow of hope or safety to the patient—

*Frustra per autumnos nocentem  
Corporibus metuemus Austrum. Hor.*

as has been proved by the *recovery of many invalids*, when sent home, in the Autumn, from our fleet. “*Non-alio modo evitari possunt, quam Cœlum salubriori mutando; quod invalidi plurimi domum e classe nostra, in autumno quotannis remissi, sanescende, confirmant.*” *Thesis, p. 30.*

Dr. Sinclair remarks that as in the months of *January and February*, the air is clear, temperate, and steady in the Mediterranean, they are the only months in which a *phthisical* invalid can safely sojourn on the shores, or navigate the waters of this inland ocean.

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## MEDITERRANEAN FEVER.

*Analytical Review of Dr. BURNETT's Work on the Bilious Remittent Fever of the Mediterranean.*

SEC. II.—If the destructive war, which ravaged the world for more than twenty years, has consigned millions to an early grave, it has, like most human events, been productive of good as well as evil. In a medical point of view it has called forth genius, in combating the maladies to which we are subjected by our emigration or military enterprizes; and we are much mistaken, if it has not thrown great light on a disease, the nature of which has puzzled the physicians and philosophers of all ages. The awful forms which *fever* assumes in fleets and armies beneath the burning skies of the East and West Indies, and round the romantic shores of the Mediterranean, gave rise to bold and energetic measures of cure, which never could have originated in the retired paths of private practice. A cursory view of our military and naval medical writings, must clearly evince the truth of this remark. But these innovations

were regarded with a dubious eye by our medical brethren at home; and although the host of prejudices, engendered in the humoral, spasmodic, and Brunonian Schools are now fast dispersing, it is necessary to give every new *fact*, illustrative of a more rational theory and successful practice, the widest publicity, since the phantoms of “debility and putrescence” continue still to haunt the minds of a very considerable portion of medical practitioners.

The first part of this work proposes to give “a faithful and practical account of the disease, as it appeared in the ships and hospitals of the Mediterranean fleet.”—*Preface.*

Dr. B. states that, excepting in one instance, the ships of the fleet enjoyed an exemption from fever during the spring months, and early part of the summer, the disease occurring in its epidemic state, either while the ship was in port refitting, or shortly afterwards. The exception was in H. M. S. *Kent*, where the disease broke out while cruising off Toulon, *three months* after leaving harbour. It is towards the end of June, or beginning of July, that febrile affections present themselves; and the usual symptoms are head-ache, nausea, prostration of strength, suffused eyes, flushed countenance, tongue white and moist, thirst, skin variable, both as to temperature and perspiration. The same may be said of the pulse; but the bowels are generally costive, and the appetite impaired. These are the milder symptoms of the disease in summer; but where the patient has committed excesses, or been exposed to the sun and night dew

it frequently assumes a severer aspect, resembling the autumnal fever of hot countries. At this time, gastric symptoms are seldom formidable, the head being the organ which principally labours; the relief of which, and intestinal evacuations, are the paramount objects of the practitioner's care.

As the summer advances, the disease is more dangerous. After a sense of lassitude and prostration of strength, a chilliness extending along the spine succeeds; and this is followed by considerable vascular action, accompanied by head-ache, deep-seated pain in the orbits, with sometimes a prominence of the eye-balls, which appear watery, inflamed, and impatient of the light. A flushing, and even tumefaction of the face, extending down towards the breast, are not unusual, with loaded tongue and bad taste in the mouth. Amongst the usual symptoms may also be enumerated, uneasiness in the epigastric region, nausea, bilious vomiting, pains in the joints and back, and constipation. The pulse is generally full and hard, sometimes oppressed, but rises under the lancet.— Partial perspirations are sometimes observable; but generally the skin is dry, and the temperature increased. Severe rigors sometimes, but not very commonly, precede the hot stage of the disease. In many cases, the disease makes a sudden impression, the patient dropping down in a state of insensibility, while at his usual work. In these cases, reaction soon takes place, with violent determination to the brain.

“ During the *winter months*,” says Dr. B. “ the morbid affection of the brain is not, at all times, so prominent a symptom.”—p. 6.

We have seen *intermittents*, and irregular remittents, the consequence of obstructed viscera, occur at this season; but if vege-to-animal miasmata be the cause of "the bilious remittent," when aided by atmospherical heat, the winter is assuredly an unusual time for such a disease.

Dr. Burnett very justly remarks, that if the fever is not early combated, or if treated as a typhoid affection, the appearances will be very different. The head-ache will be accompanied by stupor, and an indifference to surrounding objects; the eyes will have a duller look than usual, or have a yellow tinge spreading, more or less, rapidly to the neck and body. The tongue will be covered with a thick yellow coat, while it is brown and dry in the middle. The prostration will be considerable; the anxiety and pain in the limbs great; the uneasiness in the epigastric region will be urgent, with bilious vomiting and harrassing singultus.

"In the severe attacks," says he, "about the third day, there is often an appearance of complete remission, but the evening puts an end to the delusion; an exacerbation takes place, with great increase of all the dangerous symptoms. Unhappily, this deceitful period has often been mistaken for a real remission of the symptoms, and tonics and stimulants have been given, with a view to prevent the recurrence of the paroxysm; but vain, indeed, are all such efforts, they serve but to increase the malady.—p. 8. "As the disease advances, the pain and uneasiness about the *epigastric region* continue to increase; there is constant vomiting; considerable pain upon pressure, with restlessness and oppression at the pro-

cordia. The abdomen is likewise painful, with frequently thin, black, fœtid, and sometimes gelatinous-like stools. The suffusion, at first of a bright yellow, now assumes a darker hue,” &c.—p. 9.

The symptoms which precede death in this fever, are pretty similar to those observable in the fevers of hotter countries, such as coffee-coloured vomiting, intolerable uneasiness in the epigastrie region, hæmorrhages, subsultus tendinum, floccitatio, black encrusted tongue and teeth, sinking of the pulse, cold extremities, and finally death, which terminates the scene—“frequently on the third or fourth, but generally from the fifth to the eighth day; though sometimes, death is protracted beyond that period.”—p. 10. Dr. Burnett, contrary to the observations of Cleghorn, asserts, that “in by far the greater number of cases, though there are evening exacerbations, there is but seldom any evident and clear remission in the morning.”

Under the head of “probable causes,” Dr. Burnett traces the influence of marsh miasmata in the fevers which prevail at Minorca, Malta, &c. with many interesting and sensible remarks on the topography of those places. Dr. B. reiterates the sentiments of former writers on the *exciting* causes of this fever, namely, intemperance, exposure to the sun by day, and the dews by night. The young and plethoric are most subject to the disease, particularly the crews of boats, and ships’ companies, who have shared much prize-money, and are permitted to spend it on shore.—p. 17.

Our author has not been able to detect the agency of

contagion in its production, but rationally, we are sure, allows that “in the latter stages of this fever, where proper attention may not have been paid to personal cleanliness, to the removal of the excretions, and to ventilation, where the sick are crowded, the surrounding atmosphere may be vitiated.”—ib.

*Method of Cure.*—Dr. Burnett judiciously enough divides the disease into four stages. 1st. From the beginning till the commencement of gastric symptoms or yellow suffusion, a period of about three days. 2d. from this period till the appearance of nervous symptoms, the duration of which is various. 3d. From the accession of these last symptoms, marked by increased uneasiness in the epigastrium, ischuria, singultus, coffee-coloured vomiting, &c. till death or convalescence. 4th. From the commencement of convalescence till final recovery.

Our author but too truly observes, that in the first stage of the disease, the prostration of strength, watery eyes, anxiety, syncope on the abstraction of blood, &c. are well calculated to deceive the experienced observer.

“Blood-letting, both general and local, should be had recourse to, and repeated, according to the urgency of the symptoms: the benefit derived will be greatly increased by the use of purgatives and free ventilation. It will often happen, after a few ounces of blood have flowed, that syncope will be induced; this must not prevent the repetition of the bleeding, while the symptoms require it.”—p. 20.

Dr. B. in imitation of Dr. Irvine, prefers arteriotomy at the temples.

“ In the course of an hour, the bleeding may generally be repeated, and thirty or forty ounces may be taken away without producing syncope. In bleeding, the patient should be laid in a horizontal position.”—ib.

The purgatives which Dr. Burnett recommends, are those of Dr. Rush, namely, calomel and jalap. He justly remarks, that the oppressed pulse will rise under the lancet, and that an accession of strength is actually obtained by the loss of blood.

“ The great object, says Dr. Burnett, is the removal of the local affection of the brain, or other organ, and the production of a complete remission of the febrile symptoms in the least possible time. In one instance, I ordered blood to be taken from the temporal artery, to the amount of ninety ounces in the course of six hours; he was convalescent in three days.”—p. 22.

If, notwithstanding all our efforts, the febrile symptoms should continue, Dr. B. recommends in the evening, after a repetition, if necessary, of the bleeding, a pill composed of calomel and antimonial powder, each two grains, followed by a dose of julep. ammon. acetat. with cool drink, and the most strict antiphlogistic regimen.

In a note at page 34, Dr. B. states, that “ it is but justice that I should add, that *some surgeons* thought benefit was derived from the use of calomel in the *first stage*, carried so far as to excite ptyalism.”

After recommending decisive evacuations from the vascular system and the bowels, during the whole of the first stage, but condemning emetics, Dr. B. pro-

ceeds to the second stage, premising, that much confidence must not be placed in cold and tepid affusions, excepting as auxiliaries to the above measures.

In the second stage, he thinks, that where the symptoms indicate the necessity of venesection, it may still be resorted to, though in smaller quantities, and the blood is best drawn from the temporal artery. Blisters to the head, and daily evacuations from the bowels are here proper; but the cathartics should be of the less powerful kind, such as castor oil, assisted by enemas. The irritability of the stomach is to be allayed by the application of leeches, and the exhibition of saline draughts, in a state of effervescence, to which may be added, *small* doses of tinct. opii. The application of a large blister to the stomach has also been attended with success. In this stage, Dr. B. speaks highly of the warm bath, and we entirely coincide with him.

In the third stage, "little more can be done than to look on, and endeavour to obviate occasional symptoms as they occur." p. 29. As the pulse sinks, the stimuli must be increased; and Dr. B. thinks, that he has seen much benefit from carbonate or ammonia and aromatic confection, in this dangerous stage of the disease. We must take care, however, while we labour to restore the balance of the circulation, not to induce a state of secondary excitement, and thus exhaust the flame we were endeavouring to keep alive. Even here, constant attention must be paid to the bowels, and daily evacuations procured. Dr. B. asserts, that the disease has seldom terminated in intermittent, under his own treatment; but frequently under that of others.

“It appeared to be in general, occasioned by some morbid affection of the *brain*, *liver*, or other *viscera*.”  
p. 31.

In these cases, he recommends mercurials till the mouth becomes affected. In the fourth or convalescent stage, the only interesting remark relates to the care we should take, in guarding against a relapse from repletion. While noticing the different remedies which have, in their day, been celebrated in this fever, Dr. B. asserts of cinchona, that, “under its use, mortality has been great, relapse frequent, and, as in the cases of the *Temeraire* and *Invincible*, dysentery attacked nearly all the patients who had had fever in a severe form; nor was there an instance, that when given during a supposed remission of the symptoms, it prevented a return of the paroxysms.”—p. 34.

On dissection, the vessels of the brain were generally found distended, and even gorged with blood, while the membranes were inflamed, and the ventricles containing serous effusions. In the thorax, the lungs and other parts were inflamed. In the abdomen, liver generally enlarged, frequently livid towards the lower edge of its concave side. Gall bladder moderately full of inspissated bile. Stomach generally, more or less inflamed, as also the intestines.—p. 37 et seq.

The cases and dissections occupy more than eighty pages of the first part of our Author’s work. They more than prove the grand object of Dr. Burnett, and of many judicious writers, who have laid the result of their experience before the public; namely, that the

lancet must be boldly used in those fevers, and in those climates, where the dogmas of the schools, and the timidity of practitioners, had nearly proscribed it. In this point of view, the accumulation of facts, will firmly support the rising edifice of a more rational and successful mode of treatment than has formerly been employed, and Dr. Burnett's work therefore, entitles him to the thanks and esteem of the public.

The second part of the work opens with a sketch of the Author's observations and practice in the Mediterranean, while serving on board the Goliath, Diadem, Athenienne, and finally, as physician to the fleet. In the year 1799, a part of the Goliath's crew, that had been employed in watering the ship at Marsa Scala, in the Island of Malta, suffered an attack of bilious remittent fever, the prominent symptoms of which were, nausea, vomiting, head-ache, flushed face, full and frequent pulse, thirst, white tongue, and, in most cases, delirium.

“The patients were liberally evacuated on their complaining, and the bleeding repeated according to the urgency of the symptoms; an open state of the bowels was preserved, and a mild diaphoresis kept up. Blisters were applied to the nape of the neck and forehead, and a strict antiphlogistic regimen pursued. This soon produced a cessation of the pyrexia, when tonics and a well-regulated diet completed the cure.” p. 132.

In the succeeding year, forty of the Diadem's crew were similarly affected at Port Mahon, “and so speedily was a remission procured by the free use of the lan-

cet, that I had only occasion to send two or three to the hospital." p. 133. Dr. B. here acknowledges that the use of emetics in a few of the first cases was highly prejudicial, a fact that will be experienced in the fevers of most warm climates. In this fever, small doses of calomel and antimonial powder were given with advantage, after liberal evacuations; and a simultaneous application of cold water to the head, and warm water to the lower extremities, was productive of beneficial effects, a circumstance that accords with our own experience in fevers of a similar type. In one case which proved fatal, Dr. Burnett's assistant gave the patient an emetic of tartarized antimony, the consequence of which was, that "the vomiting increased, and never afterward for a moment left him; he passes blood by the nose, mouth, and anus, and finally died at the hospital." p. 134.

Let this prove a lesson against emetics in fevers of the warmer regions, where gastric irritability is one of the most formidable symptoms we have to encounter.

The Athenienne's ship's company having been much exposed to the ardour of a summer sun at Malta, while the vessel was docking and refitting there, was attacked with fever attended by great local determination, "but," says our Author, "by a proper use of the lancet in the *early stage*, joined to purgatives, they all speedily recovered." p. 135.

Shortly after Dr. Burnett was appointed physician to the fleet, in 1810, a fever broke out in the Achille, of 74 guns at Cadiz, which was reported to the admi-

ral, “*to be the yellow fever of the West Indies*, and of a very malignant and infectious nature.” This caused great alarm in the squadron; but Dr. B. found that the symptoms were similar to those he had observed in the fevers at Mahon, &c. and that there was great determination to the thoracic viscera in particular. “*Emetics, bark, camphor, wine, and opium were employed in the treatment of these patients,*” which our Author very properly ordered to be laid aside, since two deaths had already occurred; and “*the lancet was had recourse to and used freely, and also purgatives:* this soon produced a change in the features of the disease, and the whole, except one man, speedily recovered.” p. 136.

Dr. Burnett arrived at Gibraltar in September, at which time the garrison was healthy. The thermometer ranged from 75 to 80, and about the 18th or 19th, a deluge of rain fell, and continued three days, the torrents from the upper parts of the rock sweeping down great quantities of putrefying vegetable and animal substances, which lay stagnant with the water in many places where the outlets were not pervious. After this the weather became very warm with easterly winds. In the last three days of the month, 26 men, belonging to the St. Juan guard-ship, were sent to the hospital with the bilious remittent fever, four of whom died, none of which had been bled. The general treatment was purgatives, calomel, blisters to the region of the stomach, and gentle diaphoretics. The cold affusion was also tried, and proved uscful.

From Mahon Dr. Burnett proceeded to Sicily, where

he found that experience had already pointed out the necessity of evacuations when **DEBILITY** was the most prominent symptom, as is evinced in the communications from Dr. Ross, of the *Warrior*, and others. The army practitioners had, indeed, adopted the most decisive depletory measures among the troops in Sicily, previously to this period, as our readers know, from the writings of Irvine and Boyle; but in the navy it was only slowly introduced, and we believe Dr. B. met with some difficulties, which, however, his zeal surmounted, in banishing from the minds of the medical gentlemen under his controul, the phantom *debility*, and the delusive theories of the schools.

There is one circumstance which we have not yet noticed, though it has made a deep impression on our minds, namely, that throughout the descriptions which are given of this “biliary *remittent fever*,” by Dr. Burnett and his numerous correspondents, no mention whatever is made of either diurnal or alternate *remissions*; excepting in the *Temeraire* and *Invincible*; and we cannot help expressing our suspicion, that a great proportion of the cases were fevers occasioned by atmospherical transitions and irregularities, rather than by the application of *vegeto-animal miasmata*: and that, consequently, they were attended with more marked inflammatory symptoms, and assumed a less *remittent* type, than the fevers under whose denomination they are classed. Perhaps the term “biliary fever,” (gastric irritability being so very general) would be more proper; and where the cause can be clearly traced to

the operation of marsh miasmata, the epithet "remittent" might be properly added, because it is rare indeed that remissions on alternate days in particular, cannot be distinctly perceived. We have offered these suggestions because we are of opinion that some modification of the practice detailed by our author, is necessary in the more fatal endemics of the warmer climates, where that wonderful and powerful morbid cause—"marsh miasma," attains a state of concentration unknown in Northern latitudes. In the Temeraire and Invincible, where the fever was evidently the bilious remittent of hot climates, the treatment was founded on the directions of Lind, Clark, and Balfour, whose works continue still to produce incalculable mischief in the hands of inexperienced practitioners. But the more rational and successful doctrines and practices which have lately been promulgated by judicious medical men, both in the army and navy, will dissipate, ere long, the mists of prejudice, and annually save the lives of thousands of our countrymen. We have only to read the melancholy account of the fever in the two ships above-mentioned, to be convinced of these truths.

"On making enquiry, says Dr. B. as to the method of treatment which had been pursued with those men, I found it to have been by the use of *emetics*, calomel, antimony, *bark and wine in large quantities*, with full meals of animal food from the beginning."—p. 158.

We hardly know how a surgeon could prescribe, or a patient take, "full meals of animal food," in a violent and acute fever, where all appetite is almost invariably

destroyed. But the medicines were quite sufficient to produce the fatal catastrophe which followed. Those who did not fall immediate sacrifices, "were constantly relapsing; several as frequently as three times, most of them once, and some of them were daily attacked with dysentery." p. 159.—This was not all; for the visceral derangements induced by these protracted and repeated attacks incapacitated them in great numbers for the service of their country, and left them to drag out a miserable existence in indigence and disease! Such are the fruits of adhering to Brunonian theories, and the doctrines of debility and putrescence, taught with such complacency and importance "in academic bowers and learned halls."

We have hinted that certain modifications of the treatment pursued by our author, would be necessary in the bilious remittent fevers of warmer climates, and the reason is obvious; although in the Mediterranean, the range of the thermometer equals at certain seasons the scale of tropical temperature, yet there is not that perennial ardor which, in equatorial regions, keeps the functions of the liver in so deranged a state as to render that organ peculiarly predisposed to disease, when the balance of the circulation is violently disturbed, as in remittent and intermittent fevers. On this account, liberal evacuations in the early stages of Mediterranean fevers, and slight tonics or bitters afterwards, are in general sufficient to conduct to a happy termination: whereas, in other and hotter regions, particularly in India, the use of *mercury*, in addition to the means alluded to,

is absolutely requisite to secure the biliary organs from obstruction or abscess.

"In the Repulse," says Dr. B. "Mr. Boyd reports that he had been very successful in combating it, [the fever] by the early use of the lancet and purgatives; cold and tepid affusion he likewise found serviceable, as auxiliaries. In some cases, copious and sudden affusion produced a diminution of febrile heat, sweats, and a remission. In several of the patients, he mentions *calomel* as having had *very excellent effects*. In one case of *great danger*, benefit appeared to be derived from the inunction of *mercurial ointment* on the epigastric region." p. 149.\*

We have already stated our doubts respecting the propriety of classing all Mediterranean fevers under the head of "*bilious remittent*," as our author has done, and our belief that a great many of them occurred totally independent of marsh miasmata. The following extracts will support this opinion. Mr. Allen, surgeon of the hospital at Malta, after describing the general symptoms of a fever which broke out on board the Pomone, and remarking, that "The *head and liver* seemed to be the principal viscera affected in this fever," goes on thus: "The Weazle sloop, refitting at the dock-yard, has also sent us about thirty, with similar symptoms to the Pomone's. Our method of treatment has been, in the first instance, by the abstraction of thirty ounces of blood, the exhibition of a cathartic, and a *bolus com-*

\* See Dr. Denmark's Paper on the Mediterranean Fever in the Medico Chirurgical transactions, and Dr. Boyd's Paper on the Minorca Fever in a subsequent section.

posed of calomel and antimonial powder of each two grains, twice a day; the mist. salin. In the evening, the bleeding, if necessary, was repeated. Next day, if the symptoms required it, recourse was again had to abstraction of blood, a blister applied to the epigastric region, and the febrifuge medicines continued. I consider this fever to have been brought on by *intemperance and exposure to heat*, constituting the bilious or yellow fever of the island. It is not contagious." p. 168.

In a subsequent fever, in the Weazle, Mr. Wardlaw, whom our author highly eulogises for his abilities, and whose statement consequently deserves attention, reports thus: "The state of the weather for these six weeks past has been extremely warm; the thermometer ranging from 80 to 87 in the shade. The Weazle arrived at Malta in the month of June, and went up to the dock-yard to refit; the ship's company were then perfectly healthy. Liberty being given to go on shore, and they having received a considerable share of prize-money, intemperance was the consequence; and next day, while very much debilitated, their duty necessarily exposed them to the heat of the sun. On the first attack, I took away immediately from twenty-four to thirty ounces of blood; with saline draughts and cathartics, a bolus of calomel and antimonial powder, of each two grains twice a day, *till the mouth was slightly affected*, generally completed the cure. The *liver and brain* seemed to be the only viscera affected; the liver from obstructed ducts, and the brain from the great determination of blood to it." p. 170.

The remainder of the second part of Dr. Burnett's work is occupied in sketching the fevers of different ships, and stating the reports of their surgeons on the method of treatment, which entirely corresponded with what we have detailed in the foregoing pages. Bleeding, purging, and the exhibition of mercury were the prominent items in the "*Methodus Medendi*," and will, we are convineed, triumph over the boasted list of stimulant, antiseptic, and febrifuge remedies, so long imposed on the credulity of mankind by the fetters of prejudice, and the bigotry of preconeeived theories.

When the gates of Janus shall once more be thrown open, and the scourge of war (which Heaven avert!) be again suspended over the restless nations of the world, the medical officers of our fleets and armies will profit by the labours of the present race; and the bold energetic measures of modern practitioners in the West, in the East, and in the North, will be remembered and imitated, when the authors who practised and promulgated these tenets shall have mouldered in the dust!



### GIBRALTAR FEVER.

SEC. III.—When the ehastening hand of the Almighty lay heavy on our transatlantic brethren, and their cities exhibited the ravages of a wide wasting pestilence, we all remember the violent disputes and discrepancies of opinion which divided the Medical World, respecting the nature of the disease. It was

difficult to conceive how such diametrically opposite tenets could be so enthusiastically embraced, on points which appeared to us capable of being decided by common observation. The matter has now come nearer to us; and we see that on the shores of the Mediterranean, as well as on the shores of America, the same schisms prevail in the medical creeds of those who have been eye witnesses of the dreadful scourges that afflicted Gibraltar, Cadiz, and Cartagena, during the last ten or fifteen years. Where respectable medical testimonies are nearly balanced, it is next to impossible that *either* party can be wrong *in toto*; and therefore it appears wise and just to admit that *both* have some foundation for their opinions. Indeed, it is perhaps more true in these, than in any other instances, that “truth lies between the extremes.”

The following most important document, and the succeeding paper of Mr. Humphrey's, will exhibit as clear a view of the medical topography and fever of Gibraltar, as many volumes on the subject.

ANSWERS TO QUERIES RELATIVE TO THE EPIDEMIC  
AT GIBRALTAR, which were submitted to all the  
Medical Men in the Garrison by Mr. FRASER, now  
Deputy Inspector of Hospitals. By R. AMIEL, Esq.

QUERY No. 1.—*When did you first observe the Epidemic and do you attribute it to foreign introduction, endemic causes, or atmospheric vitiation? State facts in support of your opinion.*

I observed the first case of the malignant fever which has lately prevailed in this garrison, when I visited the Lazaretto on the 19th of August ultimo, having been absent, previous to that period, on account of the bad state of my health. A few cases of the same fever appeared afterwards in different parts of the town, and, by the 10th of September, they became so numerous as to leave no doubt about the existence of the epidemic. I had an opportunity more particularly to observe the origin and progress of that disease in the years 1810 and 1813; and, comparing the result of my observations with the history and cases of the malignant fever which raged here in 1814, I have no hesitation to give it as my opinion, that the epidemics which afflicted the garrison at those different periods are of the same nature, differing only as to the extent of their ravages, and sprang from the same source. I do not attribute it to foreign introduction, and I found my opinion on the following considerations: the rise and pro-

gress of our epidemics have never been traced, in a satisfactory manner, from a single point of contagion to a gradual number of individuals or families; and, instead of creeping slowly from one district to another, cases have appeared unconnected, and scattered at different points, and, in some instances, it has spread with the rapidity of the electric fluid, attacking persons who never had approached the sick, nor any assignable source of contagion.

An individual labouring under our epidemical fever, on being removed to a pure air and ventilated place, such as the Neutral Ground, or Europa Point, did not communicate the disease to those in the closest contact with him: this observation has been confirmed in many instances, during the epidemic of last year, amongst the foreign recruits quartered at the Brewery Barracks. The depot consisted of between five and six hundred men, sixty of whom were permanently employed in the different departments in town, or as servants to officers. Those men, on being attacked by the epidemic (and I believe not one escaped it), generally came to the barracks, where they lay all night in a crowded ward, and sometimes, by concealing themselves, they continued two days in the same place; yet I never observed, that either their breath or the effluvia of their bodies and clothes had proved infectious to their companions. Forty women of that depot, who had been prohibited passing Europa Gate, remained perfectly healthy, although I had seen some of them sitting on the same bed where a man was lying in a fever. Out of the four thousand

Spaniards removed last year to the Neutral Ground, a few died of the fever then prevailing in the garrison; but it is a well known fact, that those only had the fever there, who were already sick on going out, and that they did not communicate the disease to any of their neighbours or attendants. If this disease cannot be transplanted from this to such a small distance, could it have been transplanted thousands of miles from America to Cadiz, and then from Cadiz to Gibraltar? and, if ventilation so effectually destroys the infectious quality of this fever in a place so contiguous to our atmosphere, is to be believed, that it would have less efficacy on board a vessel, and especially in a boat, where a man or foul clothes must stay some time before they reach our shore?

The epidemics which have appeared at Gibraltar, as well as the epidemics which have raged at Cadiz, Cartagena, Malaga, Alicant, &c. &c. have always appeared about the latter end of the summer, or during the autumnal season. If the epidemic had the faculty of reproducing itself by contact with the sick, or with substances charged with the effluvia of the sick, would that faculty be inert during nine months of the year? and do other importable contagions consult seasons to make their ravages?

The inefficacy of the various means which have been repeatedly employed to stop the progress of the epidemic, such as sending out the sick, shutting up their houses, prohibiting meetings of all kinds, &c. &c. and, on the contrary, the success which has evidently af-

tended the measures of removing to a pure air those who appeared more susceptible of catching the fever, as was done last year with so many thousand inhabitants, and this year with the regiments who were growing sickly, clearly proves, that our epidemical fever is not easily removed from its focus, nor easily exported to another place.

Various cases of this fever have been observed in this garrison, while there prevailed no epidemic, nor any suspicion of an imported disorder; and I mention the two following as worthy of notice: the first has been witnessed by the Deputy Inspector of hospitals in this place.

Dominic Benedetty, an Italian by birth, a stout man, and of a strong constitution, about 26 years old, was admitted into the hospital of foreign recruits on the 29th of August, 1812. He had been taken ill at two o'clock in the afternoon, at Landport, working at the pump, when he was suddenly attacked by great shiverings, and a severe head-ache, which continues; he vomits yellow and green bile, pulse is quick, skin hot and dry, eyes reddish; complains of severe pains in the back and joints, and has a great anxiety.

30th August. Has passed a very restless night; a great deal tormented by retching and vomiting, sighing continually; countenance depressed.

1st September. Retching continues; any liquid he takes is thrown up instantly. Eyes a little yellow; lies very uneasy in his bed; has great oppression at the pit of the stomach; bowels costive.

2d September. Has passed a very bad night; has been delirious; is now sensible, but rather comatose; retching continues; has vomited a quantity of dark fluid resembling coffee grounds; skin of a natural temperature.

3d September. Skin yellow; has had the hiccough the greatest part of the night, very often vomits a dark fluid, and continues, now and then, with hiccough; urine high coloured and in small quantity.

4th September. Skin is now dark and yellow; the patient is sensible, has passed several black stools, vomited only once since last night, hiccough has not returned.

5th September. The patient feels greatly relieved; vomiting and hiccough did not return; pulse quite regular and soft; pain of the stomach relieved; keeps what he drinks; gums are sore, tongue swelled (effects of mercury.)

6th September. Has had a few hours of good sleep; continues better; relishes sago and broth.

7th September. Continues better; is convalescent.

James Shootz, admitted into the hospital of foreign recruits, 26th of December, 1812; is a German; full habit, middle-sized stature, about 25 years old; was taken ill on the 24th instant, and remained in town without reporting himself; the leading symptoms are a violent pain in the head, back, and joints; skin hot, pulse quick and low, tongue foul, eyes dull, bowels costive; complains of sickness at his stomach.

28th September. The patient has constant retchings

and vomits a green and yellow bilious-like matter; pulse continues quick, eyes yellow, and a yellowness about the chest.

30th December. The patient has an hemorrhage from the nose; pulse about 130, tongue covered with a brown fur, continual tossing, skin dark yellow, urine very scanty; no vomiting since yesterday.

31st December. Hemorrhage from the nose continues now and then, gums bleed, tongue is quite black, has swallowed a quantity of blood, has passed many black stools in his bed, is delirious, at times lying quietly, at other times attempting to leave his bed, and calling out in excruciating agony; has not passed any water since yesterday, has the hiccough, and, on the morning of the 1st of January, died.

These two cases of fever, attended with two great characteristics of the prevailing epidemic—viz. yellowness of the skin, and black vomiting, which I selected among many others I observed from time to time, while the garrison was reputed very healthy, indicate, that our epidemical fever has no need of the introduction of a foreign seed, but that it originates spontaneously here, and has, most probably, for its primary and essential cause, putrid exhalations floating in the atmosphere.

Those noxious vapours which arise from any place where the process of putrefaction is going on, either in vegetable or animal matters, are copiously generated in the neighbourhood of marshes, rivers; in the sea-port towns, &c. and have been considered, from the time of Hippocrates, as the most universal cause of diseases.

They are most easily produced by the concurrence of heat and moisture; they are more deleterious in autumn than at any other season of the year; and it is generally acknowledged, that their degree of concentration chiefly determines the types of the fever which they excite in the human body.

That numerous sources of such exhalations exist in Gibraltar, and that its topographical situation is peculiarly calculated to increase their virulence, may be inferred from the following circumstances.

The population of Gibraltar has greatly exceeded what can be admitted into the confined limits of the town; an evil which was already sensible in 1804, and has continued until 1813.

The inhabitants being much limited for ground to build upon, have frequently placed the door and windows of the apartments on the same side; and have, by that means, made it impossible to have the air of the rooms sufficiently renewed.

The ground for building being very dear, and house-rent excessively high, cellars and stables have been converted, in many places, into dwelling houses to receive numerous families, without any regard to their health or accommodation; and, in other places, a great number of sheds have been constructed, in such a manner as to preclude access to ventilation, affording, besides, materials for putrefaction, by the decayed state in which they are frequently left.

To overcome the excessive price of house-rent, the poor labouring classes of people have been compelled to

crowd themselves in the same apartment, where it is not unusual to see three rows of beds one above the other, while some are lying on the floor, which is in general badly paved, and always damp.

These people, going out early in the morning to procure their livelihood, are in the habit of shutting up the door and windows of the apartment, which are not reopened until they come home in the evening, when they breath an air deprived of its oxygen, or loaded with the noxious effluvia of their bed-cloathes.

It has been acknowledged by the Board of Health, in the proclamation dated August 27, that the first victims of the epidemic have been amongst these classes; and I am convinced, that such a deplorable state of misery has frequently given, among them, a malignant type to a disease which would otherwise have been a simple ephemeral fever; experience having shewn, that, whenever a fever appears in one of the individuals thus circumstanced, it attacks every one of them in succession, and always with increasing danger.

The privies being generally placed very close to inhabited rooms, and on the hill side, having no communication with the sewers, become extremely offensive, especially when nightmen are employed to empty and carry off their contents; and, in the houses where the privies had a communication with the sewers, cesspools having been established to prevent the drains from being choaked up, without attending to the danger of having the houses or yards undermined by those repositories of corruption.

The slope of the sewers being insufficient, and the largest not more than two feet in width or in height, they are not able to carry off all the filth which proceeds from this over-crowded population; and we frequently see them burst open in the streets, to the great annoyance of the inhabitants.

Those sewers not being carried on to a sufficient distance into the sea, discharge all the noxious matters on the beach, where they remain, with other putrid substances thrown from the Line Wall, untill high spring tides wash them away.

The offal of the slaughter house having been repeatedly allowed to putrefy on the beach, has been an object the more offensive to the public, as the least breeze from the sea blows its effluvia to the very centre of the town.

Fresh water being a scarce and expensive article in this garrison, the poorer classes of inhabitants avail themselves of the opportunity to collect rain-water in pipes, tubs, &c. which they keep in yards frequented by many families, and it is not very uncommon to find there dirty water in the highest state of stench.

The inhabitants have been directed, in many parts of the town, to carry the filth and sweepings of their houses to some places which have been established, to enable the scavenger department to transport them quicker and easier out of the town; but those nuisances have been frequently left in these deposits long enough to acquire a degree of putreescency very noxious to the neighbouring habitations, and unpleasant to those who approach the cart in the act of removing them.

The beach, at the north end of the town, is covered with a quantity of timber of all kinds, and corrupt materials, which must have a pernicious effect on the atmosphere; and the water of the inundation, slowly renewed, covers itself with a green moss, which, sometimes drying on the borders, becomes a nursery of miasma; and I can assert, from my own observations, that several men of the Foreign Depot, who have been successively employed at the pump in that neighbourhood, have been attacked with fevers of a bad type, as is confirmed by the case of Dominic Benedetty.

The temperature of Gibraltar, in the summer months, differs very little from that of the Islands between the tropics, the thermometer rising from 80 to 90 degrees of Fahrenheit; the weather is usually very dry from the beginning of May to the latter end of August; and the town, protected by high walls on the north and south stands at the western foot of a steep mountain, whose elevation is about 1400 feet, completely obstructing all easterly breezes, and rendering, during their continuance, the atmosphere of this side of the rock nearly stagnant; and therefore, the exhalations which a scorching sun raises from the many unwholesome substances above enumerated, accumulate from the want of ventilation, and becoming a very powerful cause of diseases, have, most probably, aggravated the bilious remittent fever which has long been known here in its mild form, to that malignant type which has lately constituted our epidemic. In fact, the summers preceding the epidemic of 1804, 1810, 1813, and this last summer have

been chiefly remarkable for a long continuance of easterly winds; it is, consequently, highly probable, that the epidemic of Gibraltar has a domestic origin, is produced by local causes, and has not been introduced from abroad as a specific contagious disease.

It will be objected, that the epidemic of Gibraltar is the genuine yellow fever of the West Indies, a disease never observed in Europe before the year 1800, when it appeared at Cadiz, from whence it was transplanted to other sea-port towns on the meridian; that its appearance in Gibraltar in 1804, could not be attributed to local causes, as the place had been always reckoned very healthy previous to that period, but must have been consequently the result of a poison imported here, and propagated by contagion: a fact which becomes the less doubtful, as the very persons who introduced the disease from Malaga and Cadiz, have been traced and pointed out in a very satisfactory manner.—Moreover, the re-appearance of that fever in 1810 and 1813, when it raged at Cadiz and Carthagena, confirms its importation from one or other of those places, as it is difficult to believe, that local causes, which had produced the epidemic in 1804, would have been inert from 1805 to 1809, and more lately, in 1811 and 1812.

In answer to these objections, I will observe, that our epidemic, or yellow fever, is not so new a disease as has been commonly believed, but that it was observed in Minorca by Dr. Cleghorn, in an epidemical form, in the years 1744 and 5;\* that it raged in Carthagena,

\* Observations on the Epidemical Diseases of Minorca, from the year 1744 to 1749.

in the year 1785, in Malaga in the year 1786, where three thousand men died in the hospital of San Juan de Dios only, and at Cadiz in the year 1764, where according to the description of Dr. Lind, it carried off no fewer than a hundred people a day, presenting the great characteristic symptoms of our epidemic, such as black vomiting and yellowness: but this accurate observer never so much as hinted at its being an imported contagious disorder; a circumstance which would not have escaped him, if there had been any probability of its having been introduced by contagion. The epidemic did not appear in Gibraltar before the year 1804, because the miasmata arising from those noxious substances which had been suffered to accumulate, had not yet attained that degree of maturity which was required for the production of such a general and malignant disease; but a milder form of it has been long known here, under the denomination of bilious remittent, as is averred by all the medical men acquainted with this place. This fever became frequent in 1803 and in 1804, when it assumed, about the latter end of August, a very aggravated form; the character of bilious remittent being, however, yet perfectly distinct, as was declared by a medical consultation held to report on the nature and progress of the disease. If the fever has not re-appeared from 1805 to 1810, and more lately, in 1811 and 1812, it must be ascribed to that unsteadiness and unaccountable contingency which mark other diseases in their virulence and re-appearance. And, lastly, the arrival in the garrison of one or

more persons, ill of this malignant fever, at the first breaking out of the epidemic, does not prove its foreign origin, or its propagation by contagion; for, on the one hand, this fever has broken out in places where there was not the least possibility of foreign introduction; and on the other, a number of people labouring under it have sometimes been landed in other places, without injury to the health of the inhabitants. In support of this fact, I submit the following memoranda:—

“ At the commencement of January, 1812, about 460 foreign recruits arrived in this bay from the Spanish coast: part of them were landed in this garrison on the 13th of that month, but they were re-embarked the next day on board the Downs and Langley Transports, to proceed immediately to England. By some accident, the Downs lost the convoy in the night, and came back to this bay, where she lay on the 28th, when I was desired to go on board, as some of the recruits had been taken ill. On my first visit, I found five or six men with a fever, one of them very ill; and I observed, that besides their being in a crowded state, they were in great want of clothes; a circumstance which induced them constantly to stay between decks, in order to avoid the inclemency of the weather. On the 30th of January, the sick, whose number had increased to thirteen, were landed and brought to the hospital of foreign recruits; and on the 2d of February, 18 more of the same men, who had been taken ill, were likewise landed and sent to the hospital of the 7th R. V. B. in charge of Dr. Lambert; the number of the sick, however, con-

tinuing to increase among them, an hospital was established afloat, on board the transport Edward, and I believe, no less than forty of the same men were admitted into it in the course of a very few days. The fever in all those men presented a type more or less continued, was attended with irritability of the stomach, bilious vomiting, yellowness of the skin, &c. &c.; and had, in every symptom, a perfect resemblance to the epidemic which has prevailed in this garrison."

The circumstances which preceded the breaking out of this fever, exclude every suspicion of its having been excited by the introduction of a foreign poison; and its not having spread to the people lying in the same wards with them ashore, proves, that it was not a disease propagated by a specific contagion, but a disease generated in that filthy, crowded, and unventilated vessel—which may serve to establish the fact, that the malignant fever of our epidemic may originate in this warm latitude, in any place where the same circumstances are to be found.

"On the 22d of January, 1813, a vessel from Alicant landed in this garrison thirty-eight recruits and six prisoners: the former were sent to the Depot, and the latter were confined in the Provost. The recruits appeared very healthy on their landing: but the next day, 23d of January, five of them were sent to the hospital with fever. On the 24th, three of the same men were likewise sent to the hospital with fever; on the 25th, two; on the 26th, five; on the 27th, three; and on the 30th, four more:—so that, in the space of twelve days, thirty-four out of the thirty-eight recruits, and

three of the six prisoners confined in the Provost, were admitted into the hospital for foreign recruits, with the symptoms of the fever so often prevalent in this garrison, viz. shiverings, severe head-ache, eyes inflamed and watery; pulse full and quick; pains in the back and joints; irritability of the stomach; bilious vomiting; and, as the fever advanced, a yellow suffusion about the eyes and skin, &c. &c. The fever terminated generally, from the 5th to the 7th day after the attack, by a copious perspiration, leaving the convalescent in a state of great debility, and much exposed to relapses."

Although that fever appeared of a mild nature (probably on account of the cold season of the year,) there is ground to suspect, that it was a fever susceptible of becoming infectious; that is, of acquiring the power of re-producing itself on individuals exposed to its effluvia during a length of time, because two men in the hospital with chronic disorders, one orderly, and the surgeon who attended them, were taken ill of a fever with the same symptoms. Those men had suffered a great deal on board, where they had been twenty-two days in the most stormy season of the year; they came on shore in a most wretched state; they were especially in want of clothes, and the crowded state in which they lay in the hospital, while the heavy rains and bad weather prevented the windows from being opened, was the cause of their fever taking an infectious character. Had they arrived here during the autumnal season, or had the town of Alicant not been very healthy when they embarked, I should have been led to believe, that a

fever of a suspicious type had been imported from Alicant into this place; while, from the want of such circumstances, and by a careful investigation, it is evident that the exciting causes of that fever were the misery and wretchedness of the people on board, the effects of which were on the eve of displaying themselves when they arrived in this garrison.

No. 2.—*What were the diagnostic symptoms at the commencement of the epidemic?*

The diagnostic symptoms of this epidemic, at its commencement, have been similar to those of the preceding epidemics. The disease in general manifests itself by shiverings, which are succeeded by severe head-ache, chiefly referred to the forehead, and above the orbits; pain in the back and joints; eyes inflamed and watery; skin hot; pulse quick and full; loss of appetite; bowels costive; and as the disease advances, an oppression at the region of the stomach, which is generally followed by retching and vomiting of a green and yellow bilious-like matter. By the 3d day, the inflammatory appearance of the eyes has been changed into a slight yellowness, which extends to the neck and chest; countenance is depressed; tongue furred with a brown coat, and has a tremulous motion when put out; the pulse is quick and feeble; the uneasiness at the stomach very great; the vomiting, which was green or yellow, takes a darker appearance, which has been, in many instances, not improperly, compared to coffee grounds; urine is high-coloured and scanty. At the latter end of the 3d

day, or at the commencement of the 4th day, there appears a remission of the symptoms; which, in many instances, has deluded those who were not familiar with the insidious progression of that disease; head-ache ceases; pulse, although weak, becomes regular, slower sometimes than natural, and the patient feels easier, and enjoys all his intellectual faculties; but that state is not of long duration:—and exacerbation takes place a few hours after, and brings on an increase of all the dangerous symptoms; the uneasiness at the stomach, which had never ceased completely, increases to a great pain; the abdomen is likewise painful; there is a difficulty of deglutition, with a sense of soreness of the throat; frequent vomiting of a dark matter, which, received in water, precipitates to the bottom; pain across the pubes, and suppression of urine; pulse sinks, and becomes scarcely perceptible; sweats are partial and clammy; gums and tongue turn black; hiccough is harrassing; and subsultus tendinum comes on to terminate that distressing scene on the 4th, or at the commencement of the 5th day.

In some cases, petechiæ appear before death; in others, there is an haemorrhage from the nose, gums, anus, and even from the eyes. Others have no vomiting; but, in its stead, a diarrhoea of a black fluid, which gives great gripings to the patient, and soon exhausts his strength.

The symptoms above described do not generally appear all together in the same patient, and they do not always proceed with the same rapidity; in many in-

stanees, a remission becomes sensible on the 2d day, and the disease is protracted, under the type of remittent fever, to the 7th, sometimes to the 9th, but seldom later than the 11th day.

Such is the course of that dreadful malady in its aggravated form; but fortunately, as it happened in the two last epidemics, the great majority of the cases are milder; and, the fever not attacking with all the severity above described, or being counteracted by the early use of medicines, a diaphoresis appears on the 3d or 5th day, which relieves the anxiety of the patient, and is a favourable omen; pulse becomes softer; vomiting ceases; and, all the febrile symptoms giving way, the patient becomes convalescent on the 5th or 7th day. Although the disease has been of short duration, convalescence in general is protracted, and exposed to relapses, especially when the yellow suffusion has been great

*No. 3.—In what phenomena do you consider it to assimilate with bilious remittent, or with typhus; and wherein does it differ from those disorders? Where have you witnessed the bilious remittent previous to the Epidemic? Have you witnessed the Epidemic before this season?*

I believe that our epidemic differs only in degree from the bilious remittent fever, and that those two disorders have one and the same origin; they prevail in the same climates; they attack the same organs of the body; they are chiefly fatal to persons of the same constitution; and the form of a mild remittent is often to be seen close to the most malignant type of the epidemic, at the

same time, and under equal circumstances of exposure: the symptoms in each seem only to mark gradations of the same disease, and the types, more continued or less remittent, are determined by the difference of seasons, constitutions, and by the greater or less virulence of the exciting causes. Like typhus, our epidemical fever is marked by rigors, diseased sensations, severe erratic pains, particularly of the head and loins; delirium, coma, subsultus tendinum; &c.: and like typhus, the seat of its impression appears to be the brain and the nerves, deriving most probably the peculiar symptom of yellowness, which constitutes its specific character, from the local affection of the viscus more connected with the bilious secretion.

I was in this Garrison in the year 1810, and I had the opportunity of observing the epidemical fever which then made its appearance in this place. Bilious remittents were very prevalent in July and August, especially in the hospital of foreign recruits, of which I had the charge; in the month of September, some cases of that fever appeared likewise in the same hospital, but they were attended with more malignity, and two ended fatally. I was at that time desired, now and then, to visit some inhabitants labouring under a fever presenting the same symptoms, particularly in the neighbourhood of Scud Hill.

On the 20th October, I was called to see Jacinto Reys, a carpenter in the Dock Yard, attacked with fever; he had been working three or four days on board

the *San Juan*,\* where he was taken ill. The leading symptoms were, severe head-ache ; eyes inflamed; dorsal pains; pulse very quick and full; great irritability of the stomach; constant retching; and vomiting of a bilious-like matter, &c. The disease went through its periods to the 7th day, when a free perspiration brought on a favourable crisis. On the 22d of October, Andrew Reys, an elder brother of the patient, who did not live in the same house, but who had visited him the day before, and had been sitting for some time on his bed, was taken ill with the same leading symptoms; and in the course of three days, the mother, the grandmother, a child, and a person who lived on the same floor, were taken ill of a fever presenting the same symptoms as Jacinto Reys. Andrew Reys died of that fever on the 26th of October, and the rest of the family were sent to perform quarantine on the neutral ground, where the grandmother died.

No new cases appearing in the Garrison, the quarantine was taken off on the 24th of November, and they were allowed to return to their homes. A younger brother, however, named Joseph Reys, 14 years old, who had been very healthy during the time of the quarantine, was, three days after returning to his house, seized with a fever presenting the same symptoms as his brother's, but in a more aggravated form; on the third day, a vomiting of black matter came on, and he died on the fourth day from the attack.—The patient was visit-

\* See page 138, Burnett's Mediterranean Fever, and Edinburgh Medical Journal for October, 1812.

ed by the greater number of Medical Officers in the Garrison; the family was again sent to the neutral ground, and their furniture burned.

On examining with attention the circumstances of the cases which occurred during the fevers prevailing in this Garrison in that year, it appears to me evident, from the facts which directly came under my knowledge, that atmospheric causes, more or less powerful, according to the different changes of seasons, gradually directed the form of those fevers, from the mild bilious remittent in July and August, to a more aggravated one in September and October, attended with great irritability of the stomach, but with remissions still distinct; and lastly, in November, to that malignant type which brought on dissolution in four days, proceeded by black vomiting. The exciting causes of the fever which attacked the whole of the unfortunate family of Reys, must have had the same origin; but those exciting causes were more concentrated, and had acquired greater energy when they attacked Joseph Reys, its last victim.

Bilious remittent fevers were very prevalent during the summer of the year 1803, appearing likewise under a mild type in July and August; but, as the autumn approached, I observed they were assuming a more aggravated character, and, at the commencement of September, two gardeners died of fever in less than five days, in my neighbourhood, one opposite Cooper's Buildings, and the other near the South Barracks.—These two fatal cases of fever, which I know to have been previous to, or contemporary with those in the City

Mill Lane, have convinced me, that the circulated report of the epidemic having originated in the latter place, was groundless, as well as its importation from Cadiz; and the history of the epidemic of the year 1810, proves it likewise to be endemic here, and not imported from Carthagena, as has been asserted.

No. 4.—*What was its individual duration, particularly in fatal cases?*

I had no opportunity to observe the individual duration of the late epidemic, except when I had the charge of Dillon's Hospital; the few fatal cases I observed then, took place from the 5th to the 7th day from the attack. With the other sick, a free perspiration appeared from the 3d to the 5th day, which was followed by a remission of all the febrile symptoms, and the patients were convalescent very soon after that crisis. In one case only, the disease was protracted to the 9th day, when a swelling of the parotis appeared; the patient was better on the 10th, and on the 12th day from the first attack he was sent to the camp in a very fair way of recovery.

No. 5.—*What were the mortal symptoms? Did any particular symptoms denote convalescence, or crisis?*

The symptoms, which have more immediately preceded the fatal termination of this fever, have been weakness and irregularity of the mental operations, face flushed, eyes dull and half open, breathing short and laborious, sweats cold and clammy; pulse low, ver-

micular and intermitting; deglutition difficult, faltering of the speech, passive hemorrhages from different parts, involuntary stools of a black and fetid fluid, effusions under the skin forming petechiæ or vibices, anxiety inexpressible, constant retching and vomiting of a dark matter; tongue, gums, and lips quite black; fetid breath, cadaverous smell of the body; urine high coloured, turbid, scanty, and sometimes totally suppressed; hiccough, coma, convulsions, subsultus tendinum, &c.

A concurrence of these symptoms denotes the greatest degree of debility, combined with a putrescent state of the fluids; and death may be announced as fast approaching.

The favourable terminations of this fever have generally taken place on the 3d, 5th or 7th day from the attack; and have been announced by a copious and free perspiration, which has marked a crisis of the disease; pulse has become soft and regular; and the patient recovering his appetite and sleep, has passed to convalescence.

No. 6.—*Have you been able to adopt a general mode of treatment, to which you give the preference? Report especially upon—*

1st. *Bleeding.*—I have bled very seldom during the epidemic; I have found bleeding very successful in the bilious remittent of the summer.

2d. *Purgative Medicine.*—I have constantly made use of purgative medicines at the commencement of

the attack, and repeated them occasionally at the different stages of the disease, so as to keep the bowels open.

3d. *Cold affusion, or cold generally.*—I have employed cold air, and very often spongings with cold water, in order to moderate the preternatural heat of the skin, and to check the increased velocity of the circulation.

4th. *Tepid spongings.*—Tepid fomentations have been employed on the abdomen whenever there was any pain, strangury, or diminution of urine; and warm baths have been found very useful in the second stage of the disease, when the pains were severe, and the nervous symptoms were attended by great prostration of force.

5th. *Mercury as an alterative.*—I have most generally employed mercury on the first attack, until it produced a small degree of ptyalism; and I employed it in doses corresponding to the degree of fever, with an intention quickly to affect all the system.

6th. *Other remedies.*—I had recourse to different remedies to oppose different symptoms, as they appeared most urgent; incessant vomiting has been in general the most distressing of all, and the most difficult to subdue; and, in order to sooth the exquisite irritability of the stomach, I have employed, alternately, fomentations with sulphuric æther on the epigastric region, the application of opium, camphor, and sometimes of a large blister, &c.; and internally the effervescent mixture—columba root, brandy and water, opium, &c.; but repeated elysters with small doses of opium, have been found peculiarly serviceable, and sometimes it has been

beneficial for the patient to abstain from any liquid for several hours.

In one instance, the strength of the patient being nearly exhausted, the urine turbid and scanty, I administered, on the recommendation of Dr. Holst, 30 drops of the spirit of turpentine, and I repeated the dose two hours after. I have reason to believe that this medicine was very useful; and the patient recovered.

When the increased action of the system had been overcome, and the remissions were no longer doubtful, which has generally happened on the 4th or 5th day, I endeavoured to obviate the debility by administering bark combined with a mineral acid, at first in decoction and small doses, and, as the stomach recovered its tone, in substance and combined with wine.

*No. 7.—What were the most severe appearances you observed on dissection?*

The most severe appearances I observed on dissection, were gangrenous spots on the internal surface of the stomach, and a quantity of black fluid contained in it; liver enlarged, gall bladder full of a black and viscid bilious matter, &c.—Effusions of lymph between the brain and the pia mater, the ventricles filled with a yellow serum, and a very remarkable distension of the blood vessels in the head of a man who died the third day of his illness. In two men who died with a suppression of urine, a very small quantity of dark turbid fluid was found in the bladder.

No. 8.—*Can you support by cases, or undeniably authority, any instance of a second attack, or relapse? If so, forward the regular statement. Were both attacks of fever, in such instances, decidedly marked, or similar in their progress? Was there a complete remission of all the febrile symptoms, in those called relapses? Were the relapses referable to cold, fatigue, inebriation, or other causes?*

I believe those who have suffered the epidemic once, are generally exempt from a second attack; and the experience acquired during four epidemics in Gibraltar, has established that opinion as a law in medical science. There are, however, some exceptions; and besides a few cases I have from good authorities, I lately had myself under my care a man, of the name of Joseph Rumbel, who, from his own statement, and the assertions of his friends, was very ill of the fever in 1804, for which he was sent to the Lazaret: the attack this year has been with the same symptoms of passive hemorrhages, but it has been rather more severe, and the yellow suffusion has remained for some time after his convalescence.

I attended, during the prevalence of the epidemic last year, the wife of Sergeant Tighe, of the 26th regiment, for a disease which I then considered as the prevailing epidemic; she was dangerously ill for eight or ten days, and I have seen her this year attacked with the same leading symptoms of the epidemic; so that as

far as I am able to judge, both attacks have been regularly marked.

I have frequently observed relapses of the epidemical fever, after all the morbid symptoms had been overcome, debility excepted; in many instances, I had some reasons to attribute them to an improper conduct of the patient, such as exposing himself to cold, or making use of food unfit for his situation, &c.; but in some instances I have been at a loss to find out a cause to which I could impute such a regression to sickness.

*No. 9.—Did you observe any causes which seem to influence its progress or decline?*

I infer, from my observations, that the epidemic has spread more rapidly during the prevalence of the easterly winds, with a warm and humid atmosphere; and that it has been checked in its progress and frequency by cold, heavy rains, and high westerly breezes.

*No. 10.—Was it contagious or infectious? The reasons for supposing it so or not.*

Our epidemic being produced by local causes, not reaching the people beyond this side of the Rock, cannot correctly be deemed contagious or infectious, but merely a simple, primary, and idiopathical fever taking its type from the energy and concentration of those deleterious causes, which, floating in our atmosphere, uniformly influence a great number of persons, and, under certain circumstances, induce in them an uniform and

general aberration from the healthy state, thus constituting an epidemical disorder. This I believe, is merely the character in which the fever has appeared here during the present and preceding years, at the commencement of the season. The primary causes, however, continuing to operate, the putrid effluvia, arising from febrile bodies under an insalubrious atmosphere, have acquired, in some instances, a contagious or infectious quality; that is to say, the faculty of producing symptoms resembling those which constituted the disease from whence they originated, and of propagating that disease from one body to another, by the laws of *contagion*, which are equally terrible and mysterious.

The transition or aggravation from a simple epidemical fever to a contagious one, has been remarked by many writers. We read, in Dr. Clark's Collection, page 61: "The remittent fever, contracted at unhealthy harbors where ships touch for refreshment, from inattention to cleanliness and ventilation, acquires a high degree of virulence and *contagion*." Dr. Lind on Hot Climates, p. 138: "In the year 1741, no sooner had the rainy season set in at Carthagena, where the English troops lay encamped, than the remittent fever, then remarkably malignant, became also *contagious*, and destroyed the greatest part of the army." Guyton Morveau, in his *Traite de moyens de desinfecter l'Air*, page 244, says, "La plus terrible des contagions, et en meme temps la plus commune, est celle qui produit le grand nombre des personnes affectees de la meme maladie, quels qu'en soient le caractere et l'origine. And Mr.

Assalini, in his work, entitled, *Observations sur la Maladie appellee Peste*, page 11: "Some epidemic diseases become *contagious* solely from a number of persons being crowded together in one place, and especially in ill-ventilated hospitals "

Relying on such respectable authorities, I am strongly inclined to think, that the endemical fever of this climate appearing now and then under the type of bilious remittent, has attacked in the same manner a multitude of persons exposed to the same atmospheric causes, and has constituted our epidemical disease; *but that disease, epidemical only in the abodes of filth and confined air has acquired, in some circumstances, an infectious property*, which, together with predisposing causes, such as fatigue, intemperance, heat, &c. and above all the painful apprehension of soon becoming a victim to a scourge which every day cut off so many people—an apprehension which staggers the most resolute—has increased the malignity of the fever, and rendered it pernicious to the highest degree. The infectious quality, however, being only accidental, has been lost whenever the patient, or his foul clothes, have been transferred to a pure air and ventilated place, as has been confirmed by experience with the people removed to the Neutral Ground, and with the foreign recruits quartered last year at the Brewery Barracks.

My opinion relative to the epidemical fever having, in some instances, acquired an infectious property, is derived from the history of that fever in the Rey's family, which I mentioned before: the circumstance of Andrew

Rey's not living in the same place, nor having been exposed to other remote causes to which the rest of the family might have been subject, form a strong presumption that he caught the fever by sitting so long on the bed of his feverish brother. My opinion is derived likewise from my own experience in the hospital of foreign recruits, where three men and myself were taken ill with the fever in consequence of our attending thirty-four men who landed from Alicant, as stated in the preceding pages; and lastly, from the statements of some patients, who have been able to trace the moment and the track of the infection to their own persons, in the manner which has been so well described by Dr. Trotter, in his *Medicina Nautica*, pages 213 and 214.

No. 11.—*Were other acute diseases observable during the epidemic season?*

I have had under my care different acute diseases, such as catarrhs, pneumonia, dysentries, &c. during the prevalence of this and of the preceding epidemics.

No. 12.—*Were the symptoms the same at the commencement of the epidemic, as towards the end of the season, particularly in fatal cases?*

I believe the symptoms of the epidemic have been the same from the commencement to the end of the season; but, as far as I have been able to ascertain, they have grown milder since the weather has grown cooler, and I have not heard of late of any cases attended with that intense malignity and rapid dissolution, so frequent in September and October.

No. 13.—*Have you observed the disease particularly arise in any class of individuals in the habit of constant communication with each other? or have you observed it to have been particularly severe in certain tents, guard-rooms, or barracks? If so, report upon them.*

I believe it particularly arises in that class who are exposed to the sun or great fatigue, are reduced to low living, or indulge in drunken excess. It is particularly severe among those who inhabit ill-ventilated places, and are in the habit of crowding themselves in the same apartment, as is frequently the case with the labouring people of this garrison. When I had charge of the 26th regiment last year, I observed that the soldiers of that regiment, who had been on Rosia guard, were more subject to be taken ill than those who had been in the other guard rooms.

No. 14.—*At what period, after the exposure to exciting causes, did the disease generally manifest itself?*

I cannot give a positive opinion on this query, as I want experience to ascertain if nature pursues in this a regular course; but from the circumstance of people having been taken ill on the first day of their landing here, and from the information I had, that people who fled from this garrison in 1804, were taken ill on the coast of Portugal many days after they had left this place, I am induced to believe that the disease may be

put into action at any time from the first moment of exposure to a period of fifteen or twenty days.

Such are the answers which my observations and experience enable me to give the proposed queries. During four years and a half that I have been in this garrison, I have constantly had the charge of a depot, into which have been gradually admitted near twelve thousand deserters or prisoners from the French army. The wretchedness and hardships those men had undergone on the Spanish coast, predisposed them strongly to diseases, and the opportunity of witnessing among them the types which the fever assumes in this climate has been unfortunately too frequent; and from observations carefully repeated I derive my opinion, that the bilious remittent of the summer, and the epidemic of the autumn, are produced by the same causes more or less concentrated, and acting more or less generally; and that, *although the autumnal fever might have been infectious in some instances*, its infectious quality may be easily prevented; and it is to the destroying of its primary sources that our wishes and labours must be earnestly directed.

*Gibraltar, Nov. 24, 1814.*

R. AMIEL.

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*Analysis of Mr. Assistant Surgeon Humphrey's Paper  
on the Gibraltar Fever, of 1813.*

[Vide Edinburgh Journal, 1816. p. 178.]

Mr. Humphrey's object in this communication, is to recommend venesection, and the depleting system in

the above mentioned fever, and to shew that this treatment, instead of producing deleterious effects, instantaneously relieved the distressing symptoms and prostration of strength, while it cut short the disease. Mr. H. considers the fever as arising from local or endemic causes, and that it was not an imported or contagious disease. These local causes were:—

“ The excessively crowded population of the place; the houses and sheds being literally huddled together in so limited a spot, without arrangement, and of the worst construction; the doors and windows being generally on the same side of the apartments, so as to preclude a free access of air and ventilation; and among the lower orders of Portugese, Spaniards, and Jews, these dwellings are usually shut up during the whole of the day, from sun-rise to sun-set, consequently, on their return, they must breathe a very impure air, almost wholly deprived of its oxygen; the immense collection of animal and vegetable matters, arising from so great a population, during the dry summer months, remaining stagnant from May till the end of August, and which become roused into action at the end of the autumnal season by the partial rains, when the quantity of water is not sufficient to propel them through their respective drains, which are too narrow for their evacuation, being frequently choked and bursting. At this season, also, the heavy night-fogs succeeded by a parching sun, occasion exhalations extremely noxious and unwholesome. To these may be added the peculiar situation of the town, which is on the western foot of a steep rock,

about 1400 feet in height, running nearly north and south, the air remaining nearly stagnant during the prevalence of the easterly winds, which continue, with but little variation, the whole summer."

After relating some cases where venesection, and other modes of depletion were serviceable, Mr. H. observes that not one died who lost blood and was under his sole charge. "Instead of producing debility," says he, "or deleterious effects, it is the very measure that prevents these happening. The debility that we find arises from the increased action not being reduced. The heart labours exceedingly, and, if the volume of blood is not lessened, it continues to beat till absolute exhaustion ensues, or the destruction of some important viscus essential to life. The disease must then take its course; incessant vomiting comes on, terminating in the black vomit, delirium, suppression of urine, hiccough, small indistinct pulse, and the whole train of mortal symptoms. Wine, bark, opium, brandy, æther, and all the stimulants, we know to have but little effect when the disease is allowed to arrive at this advanced stage, from active measures not having been employed at its commencement."

Mr. H. judiciously remarks that although many have recovered from the efforts of nature, or trifling remedies, without bloodletting; yet this was no just reason why the measure in question should be neglected in the severe forms of the Endemic. The following were the appearances on dissection observed by Mr. Humphreys.

"The body externally of a pale yellow colour, and

very offensive. On removing the skull-cap, the dura mater extremely vascular, and turgid, as was the surface of the brain. Cutting into the substance of the cerebrum, the vessels much injected, and the cut surfaces soon became covered with blood, and in some instances, three or four ounces of serum have been found in the basis of the cranium. On opening the abdomen, most of the viscera in the cavity inflamed, the vessels of the omentum, mesentery, large and small intestines, very turgid. The stomach contained a quantity of dark or black slimy fluid, adhering closely to the internal coat, which was red, and also inflamed. The kidneys generally of a livid cast, and, when cut into, there was, in some, an unusual quantity of a purplish-coloured fluid. The urinary bladder sometimes found to contain two, three, and four ounces, and in other instances, scarcely any water."

From what has been premised in the two foregoing documents, the unbiassed part of the profession will, I think, conclude that although the Gibraltar fever has a *local origin*, yet, that when the Endemic, from any atmospheric or other cause, has risen beyond the *usual* annual level, it assumes, under circumstances of crowding and filth, a *contagious* character. By endeavouring to bend the disease, like the patients of Procrustes, to their own theories, the Contagionists, and Anti-contagionists have probably erred. It is "*aut caesar aut nullus*" with both parties—all contagion or no contagion! But Government, as well as Physicians, will act with wisdom, in viewing these fevers with a

suspicious eye; for the hardships of a few will, in that way, be the safety of many. By considering these scourges as, in general, of local and domestic origin, but occasionally ripened into a contagious maturity, we relax not in the measures which experience has proved to be efficacious in counteracting either form of this proteian enemy.

Dr. Dickson appears to have adopted an opinion, on this point, very similar to my own, in using the designation—"diffusible" disorders, to express, not a native and permanent, but an acquired and temporary power of dissemination. In a late communication "he proposes indicating the *degree* of such power by a change of termination. Thus using the same epithet [for the propriety of which he does not contend, but only for the sake of illustration] a diffusive disease might signify that which can or may diffuse itself; and a diffusible one, that which can or may *be* diffused; the latter requiring for this purpose the co-operation of a peculiar, but transitive coincidence of circumstances. For such purposes, he remarks, we have the potential *active*, and potential *passive* adjectives as they are called by Horne Tooke. Belonging to the *former* we have the termination *ive*, borrowed from the Latin, and *ic* from the Greek:—belonging to the *latter* we have, (from the Latin *bilis*) the terminations *able* and *ible*; and also the contraction *ile* having one common signification. Scaliger distinctly points out the force of the two terminations, *ilis* and *ivus*, 'duas habuere apud latinos, totidem apud græcos, terminaciones—in *ivus* activam in *ilis* passivam, &c.'

Dr. Dickson further suggests whether, in speaking of absolutely contagious or infectious diseases we might not, by the noun-substantive or adjective, indicate a *greater* or *less* degree of such power; as in the *latter* by the terminations *osus* and *ivus* &c. ex. *infectiosus* and *infectivus*?—“*Hæc omnia infectiva appellantur.*”—Vitr.

With respect to the treatment, there can be little question as to the utility of purgatives, mercury, and venesection.\* It is probable, however, that the anti-contagionists, who are also the principal advocates for extreme depletion, have sallied too far on one extreme; while the contagionists have erred, on the other, by entirely neglecting a powerful means of arresting the march of fever. Time may yet reconcile the differences of opinion, as well as the discrepancies of practice.

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*Analytical Review of Sir JAMES FELLOWES's “Reports of the PESTILENTIAL DISORDERS of Andalusia, which appeared at Cadiz in the years 1800, 1804, 1810, and 1813, &c.*

SEC. IV.—When the livid hand of pestilence presses heavily on any portion of the human race, however re-

Dr. Mc. Millen, who had ample experience in the West India fever states—“after an examination of the sick in the town and garrison of Gibraltar, and the appearances on dissection, I pronounced the disease to be the yellow fever of the West Indies, and not contagious. I immediately ordered bleeding to be employed freely at its commencement, and almost every patient recovered with whom this remedy was used.” *Burnett, 2d ed. p. 351.*

motely situated, is there any one so immersed in the toils, or absorbed in the profits of his profession, as not to lend an ear of sympathy, or at least of curiosity, to the disastrous tale? *Sunt lachrymæ rerum, et mentem mortalia tangunt!*

The reading and the thinking part of the medical community in England, have long complained of the mysterious silence which our army practitioners maintained, till very lately, respecting the fevers which ravaged the Southern parts of Spain since the beginning of the present century; but the blank is now pretty well filled up, though the discrepancies of opinion are as great as ever! The volume of Dr. Pym, though embracing a great variety of subjects, and particularly those of the present work, was chiefly *disputative* and did not, by any means offer, either so instructive or interesting a picture of the great events described, as the volume now under review. We hope, therefore, to present our readers with such a condensed view of the medical topography and fevers of Andalusia, as cannot fail to arrest their attention, excite their sympathy, and increase their store of knowledge, during its perusal.

The present subject is comprised in four Reports; the fifth being occupied with observations on the Walcheren fever. We shall follow Sir James Fellowes's divisions seriatim.

#### REPORT I.—Part I. *Medical Topography of Cadiz.*

The area on which this city stands is about a square mile, raised above the level of the *nearly* surrounding

ocean, from nine to forty-seven feet. The superficies of the soil is pure sand, except where crusts of the subjacent rock occasionally appear. The population in 1813 when the last epidemic prevailed, was computed at 70,000 souls. Since 1800, the dead bodies have been buried in a cemetery, a mile from the town. The situation of Cadiz is singularly striking. On making it from the Westward, the city seems to rise majestically from the ocean, the nearest high land being the Sierras of Xeres and Ronda, distant fifteen leagues. Cadiz, which was anciently supplied with fresh water by the famous aqueduct from Tempul, has now nothing but wells and *morias* of brackish water within its walls. Every house, however, has its *algibe* or cistern, in which water is collected from the flat terraces during rains; in defect of which, water is brought from Puerto de St. Maria in boats. Cadiz was anciently celebrated for the salubrity of its air, and fertility of its soil, but at present there is not much occasion to boast of either!

The most crowded and ill ventilated part of Cadiz is the district of St. Maria, where the posadas, taverns, and lodging houses for the lowest classes of inhabitants are situated, and where epidemic diseases first break out in general.

Each house consists of three or four stories, terminating in a flat brick roof (*azotea*) or terrace, on which are erected towers of stone or painted wood, with turrets and ornaments in the Moorish fashion, that produce a most picturesque effect when viewed from the bay. The buildings are constructed with a multiplicity

of doors and windows, that admit of a very free circulation of air, while the elevation of the peninsula above the level of the sea, offers natural facilities for public drains to cross the town in all directions, rendering it one of the cleanest and neatest cities of Europe.

During summer, sea and land breezes prevail, the former from the N. W. quarter, and the latter from the North East. These, in winter, are changed into violent South West gales, accompanied often by heavy storms of rain. In summer, the *Levanters* alternate with the sea and land breezes, to the great annoyance of the inhabitants. This wind, which is so hot and dry as to scorch the tender plants and ripening corn, covers the neighbouring mountains with a heavy dark mist. At this time the circulating system in the human frame becomes wonderfully deranged. "The fibres are irritated; the quality of the bile itself is altered, and the most pacific quiet temper is rendered irritable." This wind comes in a southerly direction over the scorching plains of Africa. Cholera morbus; bilious diarrhoeas; violent pain and giddiness of the head, and even fatal apoplexies are the consequences of these levanters. The Andalusian fever has always been much influenced, if not occasioned by this wind. The atmosphere of Cadiz is very moist, every wind that blows coming over the sea, and being charged with humidity. In respect to diet, fish is the favourite food of the natives; in defect of which, soup, and the national dish commonly called *olla*, is the usual diet. It may be remarked, however, that the opulent indulge in gross,

while the poor are forced on innutritious and unwholesome aliment, both classes exhibiting sickly constitutions, while there is no where to be seen the dark, but manly complexion of the Spanish nation. Upon the whole, although the climate cannot be called insalubrious, yet the circumscribed space into which so vast a population is crowded, together with the influence of sedentary habits and fluctuating passions, must operate in predisposing to, and aggravating a number of diseases, and particularly fevers of an epidemic character.

The following is a list of comparative mortality during the first six years of the present century. 1801, 2,359; 1802, 2,809; 1803, 2,463; 1804, (the year of epidemic fever,) 4,751; 1805, 2,723; 1806, 2,726.

## Part II. *Origin and progress of the Cadiz Fever, in 1800.*

The first great sickness that nearly depopulated Cadiz, appeared in 1466. A similar event took place in 1507. The epidemic of 1582 is *said* to have ceased through the intercession of St. Roque! In 1649, the plague was introduced into Cadiz, and raged three years, carrying off more than 14000 persons. It was not till the year 1730, that the disorder since known by the name of "El vomito negro," or black vomit, first made its appearance, and destroyed great numbers of the inhabitants. In the year following, it was equally dreadful, exhibiting spots of a livid, yellow, or dark colour, that covered the body, and were the certain forerunners of the black vomit. Don Josef Cervi, physician to Charles the Third, declared, that it was *not* the plague; but

Don F. Navarette affirmed, that this disease (*el vomito negro,*) was introduced into Cadiz by a vessel from Spanish America, and that it spread to other parts of the Peninsula. Thus we see how early the discrepancies of opinion began, and how late they have continued!

In 1764, a similar disorder appeared in Cadiz, which was witnessed by our immortal countryman, Dr. James Lind. Salvaresa, a famous Spanish physician, has written a Latin, and Dr. Lind an English account of the disease; they both prove the disease to be one and the same with the late fatal epidemic, but Salvaresa says nothing of its being contagious; on the contrary, he attributes it to atmospherical causes and corrupted corn; while Lind so wavers in his opinion that nothing decisive can be gleaned from him.

During a period of thirty-six years after the above fever, Cadiz remained healthy, notwithstanding its progressive increase of population. The last months of 1799, and the first five of 1800 were characterised by remarkably severe weather, so that at the end of May, there was scarcely any appearance of spring. All at once, however—"The heat of summer set in from the beginning of June, and by the month of August, the mercury was at 90° Fahrenheit; while the *Levanter* tended to increase the distress which the intense heat of the weather generally occasioned." p. 33.

During the mouths of June and July, no material alteration took place in the state of the public health; but in the beginning of August, the scene began to change. A fever broke out in the district of St. Maria,

which we have mentioned above, as the residence of poverty and theatre of filth. From this point it radiated in all directions; and in whatever house it appeared, all the family was ultimately attacked. A general consultation of the medical practitioners was now called, where violent discussions arose that led to nothing, but added to the universal confusion and dismay! The prevailing disorder was attributed to various causes, and was variously denominated, but the anti-contagionists were evidently superior in number, for no precautions were taken against contagion.

About the middle of August, when the daily mortality amounted to twenty-five or thirty, all heads were laid together to find out the source of the evil, and they soon pitched upon a ship (the *Dolphin*) from Spanish America, where it seems some smugglers had received the infection, and subsequently spread it through the town. This story is so extremely weak in itself, and badly put together, that we shall not attempt to trace it; but we earnestly recommend a careful consideration of the very unusual *atmospherical* phœnomena which preceded this epidemic, before it be finally arranged in the class of imported contagions.

On the 23d of August, the image of our Saviour was carried out to appease the anger of the Deity, while the concourse and conflicting passions of the vast assemblages of people rapidly augmented the mortality to 157 per diem! By the middle of September, the diurnal mortality amounted to 200, and Cadiz presented the most melancholy scene of mourning and desolation! At

this time the *disease* spread to domestic and other animals, and dogs and cats were seen dying with the black vomit. The very horses died! Will any man in his cool, unbiassed moments of reflection believe, that the cause of *fever* in these animals was wafted across the Atlantic within the sides of the *Dolphin*?\*

The first check to the epidemic was the appearance of Lord Keith's hostile fleet, which, early in October, menaced a descent on the desolated city of Cadiz. We well remember the time. We saw the signal fly for the disembarkation. We saw the British bayonets bristle in the bay, ready to drink the blood of the wretched garrison and citizens. But the great hand of Nature interposed.—The conflicting elements burst forth in a hurricane that purged the city of “plague, pestilence, and famine,” and dispersed, in a thousand directions, the invading fleet!

The neighbouring towns of Puerto Real, Port St. Mary's, Chiclana, Rota, &c. being afflicted equally as much as Cadiz, the fever was, *of course*, traced to the emigrants from the latter city. Between the beginning of August and first week in November, 48,688 people were attacked by the epidemic in Cadiz, of which number 7,292 died. In Seville the mortality exceeded

\* “The air from its *stagnant* state became so *vitiated*, that its *noxious qualities* affected even animals.” p. 45. We would ask Dr. F. what these noxious qualities were? Were they merely the consequence of *quiescence* in the atmosphere, or were they the consequence of pollution from *exhalations* mixed therein? The *former* cannot be maintained, and the *latter* proves that *febrifacient* miasma may exist *without marshes*.

22,000; in Xeres, 10,000. Thus ends the history of the Epidemic.

### Part III.—*Description of the Fever.*

The symptoms of this epidemic are divided into two classes—regular and irregular. The former gave no warning, but invaded the patient suddenly; sometimes between four and twelve o'clock in the morning, but *generally* in the night. Chilliness; violent pain across the forehead and temples; in the loins, and lower extremities; lassitude; yellow colour of the skin, especially about the third day. The countenance assumed a faded appearance. The cornea opaca of a red yellow. Restlessness; deliquium on standing up. The pulse was very irregular. To loss of appetite succeeded vomiting, but seldom diarrhoea; pain at the pit of the stomach; sweat and urine entirely bilious. A remission of these symptoms took place at the end of twenty or twenty-four hours, with an exacerbation the next day. Then a remission, or apparent apyrexia on the third, sometimes on the fourth, fifth, and seventh day, the latter very rare. During this time, the animal functions were seldom disturbed; but debility and anorexia continued long after the fever had disappeared. The irregular or anomalous signs of this disease were as follow: sensation of cold or rigor; dull pain of the head and eyes, which appeared swollen, heavy, and extremely red. The heat of the body natural; tongue tremulous and dry, with a dark stripe in the middle. Insensibility; frequent efforts to vomit; weight and uneasiness

about the region of the liver; pain and burning heat at the pit of the stomach. Change of colour to a leaden hue. Coldness of upper and lower extremities; continued or interrupted vomitings, first of a bilious, afterwards of an atrabilious matter; in other cases entirely black. The discharges from the bowels of the same colour, appearing like ground charcoal. Perpetual jactation; violent pain in the throat; difficult deglutition; deafness; red, black, or livid spots, especially on the parts pressed on. Yellowness; discharge of black blood from the mouth, nostrils, anus, eyes, ears, &c. were the precursors of death. The following were always *fatal* symptoms: dark red, or sub-livid colour of the tongue; darkness under the eyes; suppression of urine; irritation of the urethra, about the glans penis, forcing the patient to squeeze the penis.

Some patients had violent mad delirium, others continued in a comatose state. Many preserved a firmness of mind to the last moment of their lives. Several had tumours; three had carbuncles. A cutaneous eruption was common, and considered favourable. It spared those in advanced age, as also newly-born infants and young children. People of soft skins and mild dispositions escaped better than those of an opposite description: females experienced a greater immunity than males. Those about the age of puberty, of strong constitutions and dark complexions, experienced the most violent attacks; but to the pusillanimous it was most fatal. Those born in hot climates had the advantage over those from cold countries. Early yellowness on the skin was an indifferent symp-

tom; after the sixth day, it was favourable. Rigor, or sensation of *intense* cold, at the beginning was unfavourable, as was the total absence of sensation of cold. Regular and lasting shivering fits afforded the best presages. Severe pain at the pit of the stomach was a bad sign, especially if accompanied with dark-coloured vomitings. Few cooks escaped the disorder. The earlier the black vomit the greater the danger. "*Relapses were very frequent and fatal.*" Yet Aregula asserts, that the yellow fever of Andalusia only attacks persons once in their lives.

*Appearances on Dissection.*—Black or coffee-coloured matter in the stomach, duodenum, and colon. Gangrenous spots on the same viscera. Liver enlarged, and altered in appearance, approaching to the hue between yellow and black. Lungs speckled with black and gangrenous spots. "It was not uncommon to find some parts of the brain livid." Yellow colour of the skin, fat, and secretions very common. No other anatomical investigations were made.

Thus ends the Cadiz Epidemic of 1800. Nothing is there said respecting the treatment, but some general observations on this head will be introduced hereafter. We shall here, however, insert a passage from the *Conclusion* of Sir James's Work, which does not exactly quadrate with the opinions delivered above.

"As far as my experience goes, I should be induced to believe that human contagion having acquired a concentrated virulence from a combination of *peculiar circumstances, joined to the epidemic tendency of the bilious*

*remittent of the country*, gave rise to the pestilential disorder in Spain. It is possible, that persons coming from Vera Cruz or the Havannah, and carrying with them the seeds of disease, admitted to be endemic in those places, might, during their passage in a crowded ship, undergo such a change of constitution as to produce the disorder, with the *additional* property of generating it in others highly predisposed.” p. 403.

Now passing over some obscurity and confusion which run through the above passage, we appeal to our readers, whether it is not an acknowledgment of the truth of the doctrine which we have so often maintained. We also appeal to our readers, whether it is not almost a literal copy of the passage at page 81, written and published many years before Sir James’s work appeared.

Sir James next enters into a long detail of the topography of Gibraltar, and the history of the fever of 1804, Sir James treads in the steps, and embraces the same opinions as Dr. Pym, in opposition to Dr. Burnett and Mr. Amiel. He is, however, much more minute than Dr. Pym, though we cannot say that he has at all *increased* our credence in the contagion creed; nor have his arguments convinced us, that the disease was imported from Cadiz in the person of the now celebrated Santos. We shall here, however, copy a note from Sir James, relative to the topography of the spot from whence this fever radiated.

“The unhealthy circumstance to which Colonel Colville alludes, was the public drain or sewer running from the barracks; which, from being uncovered, and

from the want of water to cleanse it, was, during the heats of summer, *extremely offensive*; it was, at this time particularly so, the barrack necessaries having been emptied into it, and the contents not having then run off. The huts, in which so many sick inhabitants, and some of the married people were living, were built *adjoining the sewer*, and some *immediately over it*, with a *single boarded floor* intervening. The disorder prevailed particularly on this spot.” 139.

It would hardly be believed, that the man who could write this passage, would gravely inform us, that “marsh miasmata” exist not at Gibraltar. This is one instance of the importance of a *name*;—Vegeto-animal, or *febrific effluvia*, will as assuredly spring from the source described above by Sir James, as from the plains of Zealand or the sedgy shores of the Ganges. What madness of *party* is it then, to cling to the name of *marsh miasma* as an argument against endemic disease.

Those divisions of the work before us on the fever of Malaga, in 1803-4, are not very interesting. According to Aregula (our author’s sheet anchor on all occasions,) the *infection* was brought to Malaga in four vessels; one from Smyrna, two from Marseilles, and one from Monte Video! Sir James traces it from a point in the *low dirty quarter*, or district of Perchel, which is often overflowed by the Guadalmedina.

“ Even with the least torrent of the Guadalmedina, the streets are overflowed; which upon the waters retiring, are left full of mud and clay.” 158.

Upon the symptoms of the fever we shall not dilate.

They were by no means exactly similar to those of the fever at Cadiz and Gibraltar; though, if they all resulted from one specific contagion, there ought to prevail a considerable uniformity. We have long laid it down in our own minds, that the fevers resulting from marsh miasmata are not all of precisely the same nature, but are considerably modified by the locality of the cause.

The miasmata of Batavia for instance, will produce a disease differing in many points from the fevers of Walcheren or Philadelphia; and it has been proved, that acclimation to the miasmata of one place is no sure protection from those of another. I have stated that veterans in India, and even the blacks, fell under the malignant influence of the miasmata of Batavia, though they were, in a great measure, proof against those of Bengal, Bombay, and other sickly parts of the East. Indeed, it is quite reasonable to suppose that febrile miasmata must differ essentially in different situations, and that the fevers they produce must vary with their causes.

The epidemic of Cadiz in 1810, at which time Sir James was head of the medical department there, is very cursorily passed over; in fact, no account at all is given of it, except that it was similar to the fever of 1800, which Sir James did *not* see ! We must say, that Sir James has evinced rather too much modesty, in keeping back the whole of his own *personal* observations, while he has been so very liberal in his quotations from our good friends the Dons.

*Epidemic of 1813.*—In the month of August, 1813, the heat varied at Cadiz from  $81^{\circ}$  to  $91^{\circ}$  Fahrenheit,

and sometimes rose to 95°, with an easterly wind and cloudy atmosphere. This temperature was considerably above that of the same period in other years. Early in the month of September, a fever of a suspicious nature made its appearance in the well known abode of filth and poverty, *the Bario of St. Maria*, and soon afterward spread to other quarters of the town. A report of our author's on this occasion induced the British troops to evacuate Cadiz, and encamp eight miles distant, while the government taking alarm, decamped also. It is remarkable, that on this occasion, a committee of the principal medical men of the city, excepting three (Aregula, Flores, and Gonzales) gave in a certificate that no pestilential disorder existed at the time. The cases, however, which our author witnessed during this epidemic, appear to bear a most striking resemblance to those of *Bataria*, related in the section on Endemic of Batavia, both as to symptoms and mortality.

We shall here introduce a few specimens of the Spanish *practice* in these fevers. The *general* treatment was on the plan of Aregula; but the singular success which is said to have attended the practice of La Fuente deserves consideration. His plan was to force the patient, if possible, to swallow six or eight ounces of bark within the first forty-eight hours of the disease. At the village of Los Barrios, a few miles distant from St. Roque, ninety patients took the bark within the first *eight hours* of the fever, of whom *none* died, excepting one man, carried off by a gouty affection. Of eight patients, to whom it was administered between the eighth and tenth

hour, all recovered. Of five, who began between the twelfth and twenty-fourth hour, three recovered and two died. Of twenty, who did not take it till the second day, thirteen recovered and seven died. Of seventeen, who waited till the third or fourth day, eight recovered and nine died. And lastly, out of eighty-nine persons who made no use of the bark, but took other remedies, only twenty-two recovered and seventy-seven died.

So much were the judicious part of the inhabitants assured of these facts, that they contended, as it were, who should take most bark in the first forty-eight hours, and who should be earliest. A patient generally sent for half a pound or more of the bark, the moment he felt the first shiver, and swallowed it in large spoonfuls to the amount of half an ounce, or an ounce every two hours, without losing time, or allowing himself rest or sleep, either by night or by day. Many patients took ten, twenty, or even thirty ounces of it in a few days. Without being advocates for such a practice, we are strongly disposed to believe, that the effects of such a quantity of bark in the *very first moments of a fever* might really have been such as are represented; for we must recollect, that *then*, no great inequilibrium has taken place in the balance, either of the circulation or excitability; and that from the strong sympathy existing between the stomach and all other parts of the system, such an impression might have been made on the constitution, by the above extraordinary plan, as to arrest the further progress of the fever, in the same way as the cold affusion has checked the febrile cate-

nation, *in limine*. It is evident, however, that *after* any determination has taken place towards an organ, or in other words, *after* the balance of the circulation is much broken, the plan in question would be certain destruction. On this account also, it must rather be a self-adopted than a prescribed mode of treatment, since, in the latter case, the practitioner rarely sees disease in its very incipient movements.

“With respect to the treatment of the fever,” says our author, “it may be remarked, that the general plan of cure consisted in early evacuating the stomach and bowels with the least possible irritation, and in supporting the force of the circulation.” (We would rather say, preserving the due balance, or equal distribution of the circulation, than supporting the *force* of it in fever.) “It is to be observed, that an unusual torpor of the bowels attended this disease. Our practice in the military hospitals was principally directed to remove this, by means of six or ten grains of the subm. hydrarg with or without an equal quantity of the ex. col. com. followed up by purging salts and injections. This plan generally produced copious alvine evacuations. The following day, a pill of two grains of the submuriate, with James’s powder, was given every two hours. It was continued as long as there was an absence of untoward symptoms, or until the third day, when the tinct. cinchonæ was administered in doses of a tea spoonful, frequently repeated. The decoction, powder, extract, and tincture united, were afterwards given, according to the state of the patient’s stomach:

light and nutritious diet, in small quantities, were given during this time, with barley-water or tea. Porter was equally grateful and beneficial.—In most cases, where the calomel was given, either with or without antimonial powder, it produced a lax state of the bowels, and a moisture on the skin, with immediate relief of the head-ache; and frequently with a diminution of the other febrile symptoms. I am persuaded, that, with proper management, it is, of all others, the most powerful and useful remedy in fevers, whether arising from human contagion or marsh miasmata.” p. 406.

Bleeding did not succeed in this fever, according to our author, and emetics were improper. In conclusion, Sir James remarks—

“ From all the observations that I had an opportunity of making in this disorder, and from which any practical inferences could be drawn, it appeared to me, that on the application of the poison to the stomach, which I apprehend to be the organ most directly affected, a morbid change took place in the gastric and other juices, which, by their peculiar stimulus on the nerves of the stomach and bowels, occasioned many of the febrile phenomena, and that the *bile* was the fluid principally acted upon. A consequent derangement in the ordinary secretion of the liver generally succeeded to a considerable extent, and thus the irritability of the system being increased, tended to keep up the fever. That such an effect is produced on the bile by poisons, human contagion, or marsh miasmata, will, I think, be admitted; and I have shewn, that in the treatment of

the pestilential fever of Spain, and the bilious remittent of Holland, this predominance was strongly marked, and a correspondent principle of cure was adopted and constantly kept in view." p. 409.

Whatever may be thought of this reasoning, we believe the facts are correctly stated in the above passage. We are of opinion, however, that venesection either had not a fair trial, or has not been fairly stated by those who have *yet* written on the fever in question, among the contagion party. The evidence of the utility of mercury is here unquestionable; and its liberal use, no doubt, made some amends for the dread of the lancet.

We have now collected into a focus the most prominent traits and interesting facts which our author's work presents us relative to those scourges which desolated the vales of Andalusia. We trust that we have thus formed for our readers, who *cannot* peruse the original, an interesting epitome, that may prove no mean substitute for the volume before us; while to those who can afford the leisure and expence, we recommend the work as by no means undeserving a place in the philosophical wing of their library. To those who may be doomed to visit the peninsular shore of the Mediterranean, the publication of Sir James Fellowes is strongly recommended, as a very respectable companion to the volumes of Bancroft, Burnett, Irvine, and Pym. The work is written in a very gentlemanlike manner. Sir James will scarcely "hint a fault or hesitate dislike," even to the most prominent of his adversaries. Dr. Bancroft

is the only man at whom he levels any thing like censure.

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*Analytical Review of Mr. Doughty's Work on the Yellow Fever of Cadiz; published in 1816.*

SEC. V.—The first part of Mr. Doughty's work is dedicated to the yellow fever, as it appears in the West Indies, where our author served eight years, and where of course he had ample opportunity of becoming intimately acquainted with the nature of the disease.—His memoirs shew the superiority of bleeding, mercurial purgatives, cold and tepid affusion, &c. over every other plan of treatment. We shall pass over this division of the work entirely, in order to extend our analysis of that more immediately interesting at the present period—the fever of Cadiz.

Our author landed at Cadiz in July 1810, and immediately entered on duty at the *Hospicio*. and soon after at the *Aguada*. In the months of July, August, and September, the heat was as oppressive as Mr. D. had experienced it in the West Indies. Our author becoming extremely bilious and dyspeptic, removed for a fortnight to Gibraltar, where the temperature and sultriness of the atmosphere were still more excessive than at Cadiz. He returned to the latter place early in October, leaving Gibraltar just as the fever broke out in the transports, as stated in Dr. Pym's work.

In Cadiz it had made its debut simultaneously with that on the rock; and had excited various and discre-

pant opinions. The most *general* belief was, however, that the fever was of local origin. Mr. D. had little difficulty in recognising it as similar to the yellow fever of the West Indies, of which he had had such ample experience.

“I was immediately struck with the peculiar coincidence between the disease, as it then prevailed, and the yellow fever of Jamaica, in all the prominent symptoms and appearances observed.”

Two officers having died of the disease in the St. Elena barracks, Mr. Doughty obtained leave to open them, and stated the result in an official letter to Sir James Fellowes. The most incontestable proofs of inflammation and congestion were found in almost all the important viscera, particularly the brain, heart, lungs, and stomach.

“It might not be unreasonable to infer, that Sir James would have *officially* acknowledged the receipt of this communication; but he never did; nor has even deigned to mention it in his publication. Perhaps it was better to be silent regarding a circumstance which might militate against the *theory of contagion.*” 99.

Mr. Doughty states, in the next page, “that he never had the honour of seeing him (Sir James) by the side of any one of the many bodies he opened.” So strong was our author’s opinion of the fever being non-contagious, that he wrote a letter to the Duke of Kent on the subject, in which is the following passage:

“No medical officer of this army, I feel convinced, has taken such probable steps to acquire a knowledge

of this disease as I have, *being the only one who has had recourse to dissection*, to obtain information on this head."

For this paragraph Mr. Doughty was tried by a military court-martial, and dismissed the service! And it moreover appears from Mr. Doughty's statement, and an extract from Sir James Fellowes' charge on the court-martial, that he, Sir James, prohibited all anatomical investigation of the disease, because, forsooth, "He judged it necessary to *check at once*, what bore "on the face of it, *a sort of inhumanity*, and a prejudicial tendency, inasmuch as it might excite in the minds of the soldiery the strongest prejudices against their medical attendants, and a belief that they were *prematurely consigned to death*, for the purposes of dissection and being *anatomized!!!*"

As I believe the annals of medical literature do not exhibit a parallel to the above passage, I conceive that it is worthy of being transmitted down, as a beacon of danger to the zealous cultivator of pathological knowledge, as long as Science waves her torch of light over the gloom of intolerance!

Previously to this medical *inquisition* on the sins of anatomy, Mr. Doughty was enabled to examine the bodies of many victims to this fever; and eight dissections, with cases more or less detailed, are given; from which "I appeal (says Mr. D.) to every unbiassed reader, who may honour these pages with a perusal, or who has seen yellow fever in any one of the West India Islands, whether the shades of difference in the several symp-

toms, during the progress of the disease, or the morbid appearances after dissolution, can any ways be said to constitute a distinct order of fever from that which ever *has* been annually, more or less, and I fear, ever will be, amongst strangers from the more northern regions: a periodical visitant of intertropieal climates, in particular situations; and an occasional attendant in certain places lying in or near the 40th degree of latitude.” 171.

These *post mortem* appearances would certainly, in any unprejudiced mind, have indicated the use of the Janeet; but no such weapon was ever wielded against this formidable endemic. In our review of Sir James’s Reports, we stated that there appeared ample materials for originating a fever in the “ *Barrio or district of Sante Maria,*” without any imported somites from the western hemisphere. Our opinions are confirmed by an eye-witness, who took up his residence in the very vicinity of this focus of disease.

“ The olfactory nerves (says Mr. D.) were here assailed with the most noxious exhalations, and the eyes disgusted with every sort of filthy and excrementitious matters thrown indiscriminately into the streets. Fish bones, rotten vegetables, and rotten matters of every description, mixed together by contents from the receptacles of the night, formed the *delectable* covering of most of those extremely crowded and ill ventilated streets. Will any one tell me, that if Cadiz was built on a rock of adamant, and its streets to be covered from time to time with matters of this description, on which the solar influence might operate a degree of heat equal

to 95, or 100, often experienced out of the shade in that city, in the summer months, there would not be just grounds to expect the generation of fever." 180.

In respect to Dr. Pym's grand argument, namely, the *non-liability* to second attacks, Mr. Doughty acknowledges that persons who have once passed through the more aggravated forms of endemic fever, are comparatively secure, *for a time*, from subsequent attacks, and indeed this may be said of typhus, and the plague itself. But we are convinced with Mr. D. that this immunity is only temporary, till the susceptibility is again regenerated by a colder climate, or purer air in the same climate.

Mr. D. here instances the case of the 85th Regiment, which suffered dreadfully from the concentrated form of yellow fever in Spanish Town in 1805. The next season they escaped it entirely in Fort Augusta, but again in 1807 they were nearly annihilated in Kingston. At the latter time and place, Mr. Doughty himself was at the brink of the grave from an attack of yellow fever, though seven years previously, he asserts that he had it in its concentrated form in the same town!

Dr. Pym rests much of his force on the immunity which certain individuals whom he specifies, experienced on the rock of Gibraltar, because they had had the fever in the West Indies. We could wish him to explain the following immunity:

"In the season of 1810, (at Cadiz) to which my own particular observations relate, there were doing duty within the walls of Cadiz, and at the Aguada, two phy-

sicians to the forces, two surgeons to the forces, one deputy purveyor, an apothecary, five or six clerks, and twelve or fourteen regimental and general hospital assistants, not one of whom (independently of Sir James Fellowes and myself) had ever been in the *West Indies*, or where this fever before prevailcd; yet not one of them was attacked, although several attended patients labouring under the disease, as well as assisted me in the dissections I have given."

The difference of medical topography in Cadiz and the *Isle de Leon* is very striking, and satisfactorily accounts for the superior salubrity of the latter. The town of *Isla* is formed principally of one long, wide street, the buildings of whieh are large and not crowded together. They are consequently well ventilated and free from filth. The *Isla* in its soil is almost entirely marine sand, and is washed in three-fourths of its limits by the sea. The neighbouring *marshes*, as they are ealled, are mere excavations of the earth for the reeption of sea water, and are perfectly barren, or sprinkled here and there with the barilla shrub. It is evident that they are not the sort of marshes which exhale febrifac miasmata. We would now wish to turn the attention of the medical public towards the *treatment* of the Cadiz epidemie in 1810.

"In not one ease of the fever at Cadiz in 1810, was venesection ventured on; how far its utility in the early stage of that disease, would have been found, I can therefore only conjecture. The morbid appearances discovered on dissection, particularly the striking indi-

cations of strong muscular action in the brain, with congestions and extravasations of blood; the same in the lungs and thoracic cavities; and the almost invariable appearance of inflammation of the villous membrane of the stomach, clearly, I think demonstrate, that a copious abstraction of that fluid, at the onset of the fever, would have been a judicious practice; and that those derangements found in the parts mentioned, would have been thereby averted. Hence, the great utility of inquiry by dissection, when our endeavours in the treatment of an insidious disease have proved abortive.” p. 218.

It is melancholy to think that, after all the lights which have been thrown on the subject of fever, and many other diseases of late years, and the almost innumerable evidences of the utility of blood-letting, and other evacuations therein, an hypothetical preconception should, in 1810, give rise to a mode of treatment little better than that which resulted from the ravings of Brunonianism!

In order to substantiate this charge, we shall here give as a specimen of the general practice, one of the cases detailed by Mr. Doughty, with the appearances on dissection.

“ Mr. Bower, ætat. 41, was attacked with fever on the 19th of November, accompanied by violent vomiting and purging, the matters ejected being bitter to the taste. Cathartic extract and calomel till copious evacuations were procured.

"20th. In the evening Dr. Plenderleath was called in, who considered it a well marked case of the epidemic. His countenance at this time exhibited a very flushed appearance; he had much pain across the *fore-head*, and great sickness at stomach. Tongue white and dry; pulse rather full, strong and *expanding*; frequent bitter vomiting. Dr. P. directed two grains of calomel, two of antimenial powder, and half a grain of *opium* every *two hours*. Four ounces of infus. sennæ were ordered, but not given. The pills were continued all day, and a purgative enema administered. 9 P. M. Symptoms the same. The injection repeated. Dr. P. ordered a blister to the stomach, and one grain of *opium* to be taken.

21st. Dr. P. considered his patient had a remission of fever, and directed from one to two drachms of bark in substance to be given every three hours; the above-mentioned pills to be given alternately."

"22d. This morning, Dr. P. considered his patient in a state favourable to recovery. In the evening he observed, that a most unfavourable *change* had taken place." (No wonder!) "The nausea and vomiting recurred;\* a diffused yellowness appeared over the surface of the body. Stupor. Blister to the nape of the neck; purgative injection. Tincture of bark and sul-

\* If the reader will compare this case and treatment with those detailed under the head of "*Endemic of Patavia*," *ten years* previously, he will see a melancholy *similarity*; and an incontestable proof, that the *Bulam* contagion produced the same ravages on the brains of medical men in Edam and Cadiz!

phuric æther to allay the vomiting. One grain of opium at bed-time."

23d. Patient thinks himself better; pulse not very unnatural. Tongue black towards the uvula, but moist; yellow suffusion of a darker hue, particularly about the neck and breast. 12 o'clock. Slumbering and groaning alternately; insensible, except when roused; tongue black, dry, and rough. He expired at ten o'clock at night.

"*Sectio cadaveris.* Surface of the body exhibited a light yellow suffusion intermixed with livid blotches, as in the other cases. On removing the skull-cap, a considerable quantity of *extravasated* fluid blood in the direction of the falk. The whole surface of the cerebrum in a great degree inflamed. In several parts, bright red spots, and over the pia mater generally, a white lymphy appearance. Great vascular turgidity throughout the several convolutions of the brain, from the substance of which, when cut into, a considerable portion of red bloody fluid escaped. Anterior lobes of the brain resting on the opties greatly inflamed, and the vessels distended. About a drachm of yellow fluid in each ventricle; interior surface of the ventricles very vascular; plexus choroides uneommonly so. On removing the cerebrum, a portion of extravasated blood was found in each depression of the skull. Surface of the cerebellum inflamed, and covered with a lymphy matter; about an ounce of a sanious fluid round the medulla oblongata; medullary substance of cerebellum dotted with red particles of blood. In the thorax nothing very unusual.

In the stomach about half a pint of greyish foetid fluid; various parts of the villous membrane of this viscus exhibited an appearance like matter of this colour, and in various parts had evident marks of great inflammation, particularly about the fundus. Spleen rather large, and black internally; liver very large, but structure not apparently altered, except on the concave surface of the great lobe, where it was of an olive colour. Gall-bladder containing inspissated bile like tar." p. 132.

With these dissections *officially* before the Head of the Medical Department, whatever his rank, we ask the profession, whether the exhibition of opium, and the omission of blood-letting, were not most admirably calculated to augment those congestions and inflammations which destroyed the function and structure of the viscera above-mentioned? and, consequently whether the injudicious, though doubtless well meant, interference of Art, did not produce a result less felicitous, than if the sufferers had been left to the efforts of unassisted Nature?

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## MINORCA.

**SEC. VI**—From the geographical position of this Island, as contiguous to the great naval port of Toulon, Mahon has always been an important point of rendezvous and refit for the British navy. The necessity, therefore, of adverting to it here, is indisputable.

*Medical topography.*—The air of Minorca, in its more elevated parts, is clearer than that of England; but the

vallies are infested with mists and fogs. The *summers* are dry, clear, calm, and excessively hot—the *autumns* moist; sultry, unequal—at one moment, perfectly serene; the next cloudy and tempestuous. In *winter* the storms, though sometimes very violent, are neither frequent nor of long continuance. When they cease the weather returns to its usual serenity. The *spring* is very variable, and more allied to the winter than to the summer.

The annual range of the mercury in the shade, is not very great—generally from a height of 80 to 87 in summer, down to 48 or 41 in winter. The difference between day and night is seldom more than four or five degrees.

In summer, a morning calm is commonly succeeded by a sea breeze, following the course of the sun, and dying away in the evening. The northerly winds are cold, dry, and healthy, dispelling the mists, and giving an azure sky. The north-east and north-west winds are, especially the latter, piercing cold, and frequently attended with rain. The south and south-east, in summer are sultry, suffocating, foggy, and unhealthy. They affect the breathing—cause an excessive dejection of spirits among all ranks, and raise the mercury, on exposure, to 100° or upwards.

The sky in summer is clear azure, without clouds;—but dews descend regularly after sun-set. As autumn advances the weather becomes less serene, with occasional whirl-winds, and thunder storms. After the autumnal equinox the skies are darkened with clouds, and rains fall in torrents that come pouring from the hills,

sweeping away cattle, fences, trees, &c. accompanied by thunder, lightning, and storms—

Effusis imbribus atris  
 Tempestas sine mora furit, tonitruque tremescunt  
 Ardua terrarum, et campi: ruit aethere toto  
 Turbidus imber aqua, densisque nigerrimus Austris.

VIRG.

Excepting a few hills towards the centre, the whole island may be termed low land. The surface is rough and unequal, divided by long, narrow vales of considerable depth that run in winding directions from the interior toward the sea. In the north-east quarter, the hills are higher, with low marshy valleys unhealthy to man and beast. The soil is light and thin, and generally speaking, the whole Island has a barren appearance.

The principal diseases may be divided into epidemic, and sporadic. To the *first* belong cutaneous rashes—cholera—intermittents—fluxes—pulmonic complaints, *Erysipelatous* fevers, &c. To the *second*, obstructions of the abdominal viscera, hæmorrhoids, ulcers, herniæ, ophthalmic and nephritic pains.

Although *intermittents* are the grand prevailing fevers among the inhabitants of Minorca, yet that they occasionally degenerate into those of graver type, resembling the concentrated marsh fevers of all hot climates, may be learnt from Cleghorn—especially in the following passage. “But the utmost danger is to be apprehended, if a few drops of blood fall from the nose: “*if black matter like the grounds of coffee,* is discharged upwards or

downwards: if the urine is of a strong colour, and a strong offensive smell: if the *skin* is covered with a deep yellow; or any where discoloured with livid spots or suffusions.”\* p. 82. 5th ed.

This respected writer informs us that he examined the bodies of nearly 100 persons who perished in these fevers—and constantly found one or other part in the *lower belly* [the omentum, mesentery, colon, &c.] of a dark colour, or totally disorganized: The gall-bladder full and turgid—the stomach and intestines overflowing with bilious matter—the spleen large, sometimes weighing four or five pounds, and excessively soft and rotten. In the cavities of the head and chest, nothing extraordinary was met with, excepting yellow serum—when the skin was tinged with the same colour.” p. 84. This accords much with the result of Dr. Mc. Arthur’s dissections in yellow fever. *See the section on endemic of the West.*

Of Dr. Cleghorn’s mode of treatment we need not now say much, except that he bled and purged pretty freely before administering the bark, and that he condemned emetics. He is also of opinion that both intermittents and remittents are occasionally contagious—“and are often epidemical after extraordinarily hot, dry summers.” 110.

The same observant author describes the epidemic pleurisies of Minorca as causing vast havoc in the winter and spring months. But what is most remarkable,

\*“The English in Minorca are more liable than the natives to become yellow in fevers.”—ib.

they generally observed a remittent type. They commenced like an ague fit, with shivering and shaking—flying pains—biliary vomitings and purgings, succeeded by quick breathing—immoderate thirst—inward heat—head-ache and fever. In a few hours these symptoms became aggravated, the sick being seized with stitches in their sides striking upwards to the clavicle and shoulder-blade, or darting across from the breast bone to the vertebræ, with a load and oppression on the chest. The left side of the thorax was not nearly so often affected as the right. The patient raved at intervals, or were disturbed with frightful dreams. Mean time, the external heat of the body was, in several, very moderate—in some, less than natural; but for the most part it was intense. The pulse was very variable—frequently perfectly natural, while the patient was in the greatest danger. Nothing could be depended on from the appearance of the blood; and the only certain prognostic of safety was the ability to sleep soundly in the natural posture, and to make a deep inspiration without difficulty. Besides a morning remission, it was remarked that upon the third day, or beginning of the fourth, there was frequently a great remission—sometimes a total cessation of every violent symptom; so that the sick were thought to be out of danger; “but on the fourth or fifth a delirium came suddenly on, or the breathing became more difficult than ever, and one or both of these symptoms increasing hourly, the patient expired in a day or two, either suffocated or raging mad.” 127. Dr. C. observes that such was the rapid progress of these

mortal pleurisies, that if any of them survived the seventh day, it seemed to be entirely owing to bleeding."—*ib.*

On examining after death, the lungs were the great seat of disease in all. In many they were converted into a hard liver-like substance, and sunk in water—in some the diaphragm was inflamed—abscesses, or half-formed abscesses, with a sanguous ichor, and a rotten gelatinous substance were frequently found even in those who died so early as the fourth day, either in the lungs, or between the lungs and pleura. In some bodies the pericardium was full of purulent serum, its internal membrane and the outer surface of the heart being affected in the same manner as the lungs and pleura. 128.

It would seem strange that such testimonies as these did not long ago warn the hectic patient from a Mediterranean climate, in which, a phthisical *predisposition* will be more suddenly called into action, and a confirmed *consumption* more rapidly hurried on to a fatal termination, than in England.

The intelligent physician from whom we are now quoting, soon discerned the utility of carrying venesection to a high degree, and in fact, practised with the same boldness as we do at this day. "Between 48 and 54 ounces of blood were frequently taken away during the first 24 hours of my attendance. This sudden copious evacuation, commonly procured a cessation of all violent symptoms. It was remarkable to observe, how quickly the sick recovered their usual health and strength, notwithstanding the great loss of blood they

had sustained; while many who had been bled more sparingly, continued in a languid, infirm state for months, without being able to get rid of the cough and pains in the chest." 134. How applicable is this passage to many other fevers, as well as pulmonic!

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### THE MINORCA FEVER;

*Translated and condensed from a Latin Thesis,*

WRITTEN BY DR. WILLIAM BOYD,

*(Formerly Surgeon of Mahon Hospital)*

Entitled—DE FEBRE MINORCÆ, &c.—1817.

Although Dr. Boyd did not meet with this fever under the *remittent* type, as described by Dr. Cleghorn, yet he considers it as only differing in *grade* from the marsh or bilious remittent of that and other authors. It is produced by the same causes—appears in similar places—affects the same organs—proves fatal to the same classes of people; and only differs in consequence of atmospherical influences, and a greater intensity of force in the remote and predisposing causes.

This fever could be clearly traced to a *local* origin in Port Mahon; and was therefore not contagious, but a primary and idiopathic disease, assuming the *epidemic* character only from the state of the air, and the crowding of the sick. In spring, therefore, it appeared in its simple form. But these fevers, in various instances, acquired a contagious quality—that is, the power of propagating themselves from one individual to another.

*“In casibus variis vim contagiosam haud raro acquirunt: id est, vim gignendi propagandi quoque eundem morbum ab alio ad aliud corpus.” p. 3.\**

*Symptomatology.*—The first symptom was a sensation of cold, which crept along the spine, and over the lumbar region. To this succeeded head-ache, generally confined to the forehead, temples, and orbits. The face became flushed and tumid—the eyes inflamed and suffused with tears—the carotids and temporals pulsated violently. The countenance now became entirely changed, and in a manner not be described in words; while the patient betrayed great anxiety, restlessness—dyspnoea, with sometimes pain and sense of tightness in the chest, cough, inappetency—lassitude—thirst, and watching. The tongue is now whitish or yellowish; but for the most part moist, with a bitter taste in the mouth. The heart beats with great strength against the ribs—all the tangible arteries feel hard and full—and a soreness in the flesh is complained of all over the body. The epigastric region is now very tender; and there is nausea with bilious vomiting. Pains assail the loins---stretch down the thighs, and ultimately affect every joint and member. The bowels are obstinately costive. As the disease advances, the pulse feels less full, and is often weaker than in health; while

\* Dr. Denmark, Physician to the Fleet, who was at Mahon during the prevalence of this fever, and who declares that he was a non-contagionist, observes—“These occurrences, however, served to stagger our belief: and a combination of subsequent events has conspired to make me a convert to the opposite side of the question.”—*Med. Chir. Trans.* vol. vi.

the thirst and anxiety are aggravated. At this period, the superior parts of the body will sometimes be covered with a profuse sweat, while the skin underneath shall feel burning and rigid. If the fever proceeds, the hot stages are generally, but not always, preceded by rigors.

When the patient neglects himself for one or two days after the first attack, or if the treatment has been inefficient or improper, then a very different train of symptom take place. Together with stupor, there will also be great pain in the head---a disinclination to answer questions---and an insensibility, or at least inattention to passing occurrences. The eyes will be more turbid---often inflamed. A yellow tinge will cover the adnata, and suddenly spread to the face and neck, and thence over the whole surface of the body, in less than twenty-four hours. The tongue now exhibits a thick yellow crust---brownish and dry towards the middle---red and inflamed at the sides. The strength becomes remarkably diminished---the stomach is harassed with nausea and bilious vomiting---the heart beats less strongly, and more quickly---the countenance is collapsed, and the red tints unequally scattered over it.

After several accessions, and about the third day, these symptoms are suddenly and signally mitigated---the skin comes nearly to its natural temperature---the fever disappears, and nothing but debility apparently remains. But in a short time, an exacerbation supervenes. The disease acquires a renovated force, and

shews itself under quite a different aspect. A new train of symptoms assail, with the greatest violence, the epigastric region. The sense of anxiety at the præcordia is now changed into acute pain, which is greatly aggravated by pressure—the redness of the eyes changes into yellowness—the countenance is sunk---the tongue is brown, and trembles immoderately when attempted to be thrust out---the pulse is rapid and weak---all desire for food or drink vanishes---there is perpetual vomiting of putrid bile---the præcordia are exceedingly oppressed---the patient sighs frequently---the stools are liquid---fœtid---slimy, and often bloody. The whole body is now of an intensely yellow colour [totum corpus alte flavescit.]---and emits a fœtor resembling that of putrid bile. The patient's mind is now completely collected, and he answers questions with promptness and clearness---sometimes there is a little aberration, or negligence of surrounding circumstances. From this time, that is to say, from the 5th till the 7th day, the patient is harassed with a train of nervous symptoms, as subsultus tendinum, tremors of the whole body, &c. which tend to exhaust the strength. With pain in the abdomen, there is difficulty of swallowing, and a sense of ulceration in the fauces, with vomiting of a glairy, or black matter resembling the *grounds of coffee*. [Nec non vomitus materiæ glutinosæ nigræque, fecibus choavæ similis.] Pain about the pubes, and inability to make water---a dangerous symptom.\*

\* The above authentic document drawn up by a gentleman of great talent and observation, at the bed side of sick-

In many cases, we observed swelling and suppuration of the parotid glands, with petechiae before death. In others, there were discharges of blood from the nostrils, gums, fauces, &c. In others still, instead of gastric irritability, we had Diarrhoea, with discharges of black fluid, which occasioned great torments, and rapidly prostrated the patient's strength. The face, which lately exhibited a yellowish or livid appearance, now became tumefied—the eyes lost all expression, and became glassy—the pupils dilated—clammy sweats broke out unequally over the body—the tongue and gums turned quite black—the breathing became more difficult—the anxiety more distressing. From this time, coma or delirium, with coldness of the extremities and intermitting pulse took place, and convulsions terminated the scene, from the 5th till the 8th day—sometimes sooner, sometimes later than this period.

All the above symptoms were not apparent in the same person, nor ran an equally rapid course. In the young, strong, and plethoric, the march was more violent and hurried—in the elderly and enfeebled, the disease was infinitely milder.—Turbid urine letting fall a copious sediment—discharge of bilious stools, at first black, afterwards yellow and copious, were favourable symptoms. When the disease continued beyond the

ness, must remove all doubt relative to the existence of yellow fever in the Mediterranean; while the Section on Endemic of Batavia must have convinced the most sceptical that the same disease appears in the Eastern world, modified of course by climate, constitution, and cause. Compare this description with Mr. Amiel's account of the Gibraltar Fever.

usual time, and especially if the skin kept its yellow tinge, the liver was almost always affected. Relapses were not unfrequent, particularly if great attention was not paid to a restricted diet during convalescence.

*Ætiology.*—*Intense heat*, which, during the summer months, prevails without intermission in Mahon harbour, where a breeze seldom ruffles the surface of the water—violent exercise in the open sun—intemperance of every kind, in which sailors, on getting ashore, so unguardedly indulge—exposure to the night air, or to dews, wet, or cold, after the body had been heated; these were the principal exciting causes that gave activity to **VEGETO-ANIMAL EXHALATIONS** which issue in profusion from the harbour and vicinity of MAHON.

This port, so destructive to the health of belligerent seamen, is situated low, and the surrounding sea is so tranquil, and the tides so imperceptible, that whatever is thrown into the water remains almost always in the same spot. Now when we consider the quantities of putrefying animal and vegetable substances that are daily launched into the harbour, or exposed to a tropical heat on its shores, and couple these circumstances with the *stagnant* state of the water itself, during the summer and autumn months; and moreover, when we observe a pretty extensive lake in the vicinity of the port, which, in winter, is filled by rains and springs, but in summer exposes its half-dried, slimy bottom to the sun, whence pestiferous effluvia incessantly emanate [prope portum adest lacus, qui hieme ex aquis pluviis ac fontaneis constat; sed estate fere arescit, et limosam massam putres-

centem relinquit, ex qua pestifera effluvia haud cessant emanare] we cannot be at a loss for the generation of those *morbific miasms*, which, in all hot climates and similar situations, give origin to fevers analogous to the one under consideration.

*Prognosis: Favourable.*—Little, or only mucous vomiting at the beginning of the second stage—moist skin—slow advance of the yellow suffusion—bowels becoming loose, with bilious stools—integrity of the nervous system and its functions.

*Unfavourable.*—Early accession of the yellow suffusion—deepness of its tint—early disturbance of the sensorial functions—deep redness of the face—dullness of the eyes—laborious respiration—feeble, creeping, and intermitting pulse—difficulty of swallowing—great tremour of the tongue—unconscious discharge of faeces, especially of a black, liquid quality—incessant vomiting of dark coloured matters, and great in proportion to the fluid swallowed—much anxiety.

*Post Mortem Appearances.*—The vessels of the brain much distended—coverings not rarely inflamed—depositions of coagulable lymph between the convolutions—adhesions occasionally between the hemispheres—ventricles sometimes distended with limpid or yellow lymph—lungs sometimes inflamed, with adhesions or effusions—pericardium inflamed, with more than usual water in its cavity. Diaphragm often inflamed, with coats of coagulable lymph. Liver, in most instances, enlarged—often inflamed, with its inferior margin livid—Gall-bladder distended with viscid bile. Stomach

and intestines often inflamed, and the villous coat of a dark colour.

These appearances, like the symptoms, were not all found in the same person, or together. In some dissections we found one set of organs, in others another, bearing the marks of disorganizing action. In general, however the brain and lungs seemed to bear the greatest onus of disease.

*Consilia Medendi.*—The disease naturally divided itself into two stages—the first of re-action; the second of collapse. In the first stage the object was to moderate or repress the violence of re-action; in the second, to obviate symptoms, and support the energies of nature.

*1st Stage.*—Venesection is here our sheet anchor. No man can lay down a rule of *quantity*. Blood must be drawn till the symptoms are signally mitigated, whether at twice, thrice, or four times in the day. I do not think it of much consequence from what part of the body the blood be drawn. Some prefer the arm, some the jugular vein, others the temporal artery. To alleviate the head-ache, I think I have found arteriotomy at the temples most powerful. But the vascular system must be promptly, and well depleted, through whatever outlet the current flows, otherwise some texture or organization will give way, and then the chances of recovery are faint indeed.

Mean time the head is to be shaved, and kept constantly enveloped with cloths wetted with the coldest water. This is an important measure, which should never be neglected. In my own person I experienced

its good effects, in soothing the pain—diminishing the heat—and tranquilizing the irritability of the system.\*

*Purgatives.* Our next step is to open the bowels, which indeed must be done through the whole course of the disease. For this purpose, and also to correct the vitiated secretions of the intestinal canal and liver, I have exhibited eight or ten grains of calomel every four hours, without ever observing any bad consequences from hypercatharsis. In every case where ptyalism came on, the patient convalesced—the stools became natural, and the tongue clean—“In omni casu in quo (hyd-submūr) salivam movit, æger plerumque convaluit, naturales fiunt foeces, lingua nitida, ac humida.” A cooling regimen is, of course, to be rigidly observed. The cold affusions and spongings are also valuable auxiliaries; and where the re-action is not in a salutary degree, and the interior organs appear oppressed—tepid affusions will be necessary.

To relieve local symptoms—leeches to the temples, or cupping may be employed when general bleeding dare not be ventured on. Blisters also to the head—neck—spine—or praecordial region must be had recourse to. In cases of great collapse and deficiency of the *vis vitæ*, the tepid bath will prove an important measure in drawing the circulation to the surface. The abdomen and extremities may also be fomented often as a substitute or auxiliary to the bath.

\* Dr. Boyd nearly perished under this fever himself; but was saved by profuse bleeding. Dr. Denmark states that Dr. B. caught the fever from one of his patients. *Med. Chir. Trans. vol. vi. p. 301.*

Finally, when all danger of inflammation or congestion is over—and where great irritability of the heart and nervous system prevails, opiates may be administered, and with great solace to the feelings of the patient.

In the second stage, the great difficulty is to restrain the vomiting. Fomentations to the epigastric region are here useful, with opium, æther, and camphor internally---to which means must be added blisters. Effervescing draughts with small doses of tinct. opii. ether, infusion of columbo, may be tried, and even hot wine with spices—or brandy and water. Glysters with laudanum will sometimes restrain the gastric irritability; and I have frequently given, where the strength was much exhausted, 30 or 40 drops of spirit of turpentine every two hours, with great advantage. Where stimulants are necessary at the close of the disease, port wine cautiously administered is the most grateful. Quassia and porter in small quantities during convalescence. But a constant attention should be paid lest the patient take too much food, which will readily induce a relapse.

We shall conclude this section with a few short extracts from Dr. Denmark's paper on the same fever. "A case of this fever will seldom occur wherein the use of the lancet, more or less, will not be applicable. But this powerful remedy is not in all cases infallible. The danger consists in either applying it too late, or too often; and the abstraction of blood, under my own direction, has accelerated the patient's death, when circumstances seemed to justify the measure."

"I shall now say a few words on Mercury, our

“sheet-anchor” in affections where the biliary organs are implicated. Viewed in any way, the utility of mercury is incontrovertible. Calomel is beneficial in whatever way it operates. Whether it produce catharsis, when exhibited with a view to salivate; or salivate, when intended to act as a cathartic, the result, in either case, will be salutary, though perhaps not to the same extent. I have prescribed it in various forms, in order to fulfil both these intentions, and the result has enabled me to speak most favourably of it. I have frequently recommended calomel in three grain doses with as much pulv. antim. every three or four hours. The antimony seemed to assist the purgative operation of the calomel, and seldom failed to procure copious biliary stools, without creating nausea. In the treatment of this fever, however, I usually gave the calomel *in scruple doses* twice a day, in many cases from the first invasion of the complaint, with the intention of speedily attacking the disease, through the system. But in this I commonly failed during the first days, in plethoric habits. Before the system was lowered, it evinced no effect through the medium of the circulation—it only kept the bowels clear. But after the lapse of two or three days, and the use of free venesection and purging; and at an earlier period in debilitated subjects, and in cases of relapse, the mouth often became suddenly sore with profuse ptyalism and rapid convalescence as certainly ensued. I do not recollect any deaths after the specific action of the mercury shewed itself; nor did the yellow suffusion occur after this symptom appeared.”  
*Med. Chir. Trans. vol. vi. p. 307.*

I trust that this document will prove a standard record and faithful picture of the MINORCA FEVER, as long as that Island offers a commercial port, or belligerent rendezvous to the naval flag of Great Britain.

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## MALARIA OF ITALY.

M. RIGAUD DE L'ISLE, ON MALARIA.

*Translated from a Memoir lately read before the Royal Academy of Sciences at Paris.*

SEC. VII. As it was in the states of the Pope, says M. Rigaud de L'Isle, and principally in the *Campagna di Roma* that I had occasion to make these observations in 1810 and 1811, I shall first give a general idea of the country, which will render what is to follow more intelligible.

Rome is situated amidst a long series of naked plains, bounded on the East by the chain of the Appennines, on the West by the sea, on the South and North by groups of mountains, which stand detached from the great chain. A first plane, composed of lands formed by alluvion, very low and often inundated, extends along the coast, which runs north-west and south-east; a great number of small rivers have here their mouths, which are encumbered with mud and sand; and here also are found extensive ponds of salt water and immense marshes.

Immediately adjoining, and in the same direction is seen a second plane of volcanic soil, forming a great number of platforms, the undulating surface of which is intersected by ravines and narrow valleys, whence wa-

ters, almost sulphurous and stinking, discharge themselves. The craters from which these immense accumulations of volcanic matter were vomited, are almost all now transformed into lakes, the banks of which are partly marshy. A third zone, perfectly distinct from the two former, borders upon the mountains; it is composed of calcareous hills, riven by a multitude of torrents, which precipitate themselves into the Tiber. The valley in which that river flows at first runs in the general direction of the hills and platforms, but afterwards cuts across them. It is very deep, with a level bottom, and but little inclination; neglected arms of the river, a great number of canals and ditches filled with stagnant waters, and pools, left by inundations, render it a very unwholesome abode; and accordingly very few houses are to be seen here.

Some insulated groups, some mountains detached from the great chain rise here and there amidst these plains, most of them abruptly and without gradation. Such are the insulated rock of St. Orestes;\* Mount Circello, formerly the Island of Circ, to the Pontine marshes; the volcanic peaks of Viterbo, Monterossi, Monte Cavo, formerly the *Mons Albanus*, forming part of the group of Artemisio. Between these last, for a space of many hundred square miles, the country is bare and destitute of trees; but in many other parts it is planted, wooded, cultivated and covered with forests as much or more than any other tract of the globe.

\* Candidus Soracte, thus named from the white calcareous cliffs on its summit.

From this peculiar disposition of the places in the *Campagna di Roma* it results, that we may there compare in a few hours what otherwise we might go very far in quest of, and not find again, under similar circumstances. It is, therefore, singularly favourable for such researches as the present. Here, beside low and moist plains, we find others that are elevated and dry, overgrown with wood or bare of trees; in one place a considerable population; in another scarcely a single human inhabitant; narrow valleys; sheltered, or elevated and exposed situations; houses perched upon pointed rocks, and others immediately at their base; every variety of soil; stagnant waters—and all these as it were in one common atmosphere, subject to the same winds and the same influences of temperature, seasons, and unwholesome air.

Let us suppose an observer placed upon the coast; he considers the inhabitants; he sees them in summer, and more particularly in autumn, with a livid tint, shining skin, the abdomen distended, a lounging listless gait, mostly afflicted with putrid and malignant fevers. He directs his course to one of those elevated rocks which I have described; he ascends, and as he arises, he finds no other fever than the simple intermittent; by degrees this also disappears; he meets with no faces but what exhibit a ruddy glow, and all the appearances of health and vigour.

Which way soever he turns the same phenomena present themselves; in every quarter diseases pursue the inhabitants of the plain, and spare those of lofty situa-

tions: hence he cannot help inferring that the bad air does not rise so high as the latter, and that it must therefore possess a greater specific gravity than the ordinary atmospheric air. He will seek the point at which it ceases to manifest itself, and trace the limits that are assigned to it; and if for some days there has prevailed one of those impetuous winds, to which is ascribed the most baneful and the most speedy influence upon health; if not only those who inhabit the summit of the mountain, but also those at its foot, who happen to dwell on the contrary side, do not appear to have felt its bad effects; if, moreover, a forest, a high wall, a mere canvass has screened them from those effects, our observer will again be naturally led to infer that the cause of the insalubrity of these winds is purely accidental; he will seek to discover how they may have been divested of it in passing through the trees of a forest, or breaking against any other obstacle. He will then certainly not be able to repress some rational doubts on the justice of the opinion which pronounces bad air to be a substance similar to our known permanent gases; for it will appear absolutely impossible to him that a gas could have been thus stopped, sifted, strained, and deposited. He will make a comparison, coarse it is true, but accurate; these winds will seem to him to transport deleterious miasmata as they transport dust; the heaviest particles fall or are carried down to the lowest strata; the others are deposited against the obstacles opposed to the direction of the currents.

Observations quite as easily made suggested to me

reflections and experiments from which I have deduced the following inferences:—

1.—Miasmata possess such a gravity that they can never rise in the atmosphere, unless assisted by a lighter body, which carries them into it.

2.—They have no perceptible smell, and may be separated from such odours with which they may be accidentally associated.

3.—It is aqueous vapours that hold them suspended in the atmosphere.

4.—Various obstacles form barriers which they cannot pass, and against which they deposit themselves.

*Section 1.*—The air which is very unhealthy at Montalto, Corneto, and along all that coast, stretching to the south as far as Terracina, becomes salubrious on Mount Argental, which rises above Orbitello. The villages of la Tolfa and the habitations situated above Civita Vecchia on the Cimic hills, afford a very agreeable and healthy abode, though situated in the centre of that region of desolation. The same is the case when we rise above the village of St. Felice, on the mountain of Circe; to the palace of Theodoric, above Terracina; to the villages of Sezza and Sermoneta, perched perpendicularly above the Pontine marshes, on the rocks of the Lepine mountains; also at Monte Fiasconc, above the lake of Bolsena, above the villages of Valentano, Capo di Monte, Martha, &c.

A little farther eastward, on the insulated rock of St. Orestes, the inhabitants of the village which is built on its side, invariably enjoy the best health; if they descend,

disease attacks them, and common fevers make their appearance; a little lower down, for instance at Sandreva, they will have putrid fevers; and still lower down, at Borghetto, they will die. Cross the river, ascend to Magliano, a little higher to Otricoli, still higher to Narni, you will find the air again improve as you proceed. At the time of the erection of the bridge of Felice, in order to unite all the waters of the river, Sixtus V. was obliged to divert a branch of the Tiber which passed below the hills of Magliano, leaving to time the task of filling up the old bed: half of the population perished; one single convent of nuns, in which I lodged, contained 69 sisters, including novices, of whom 63 died in two years.

All the declivities, calcareous on the left, and volcanic on the right of the valley of the Tiber, are cultivated and planted with olives or vines. The villages here are all situated on elevated points, and the health of the inhabitants is always in proportion to their height above the bed of the river, without any distinction whatever as to the nature of the soil, the culture, the quality of their waters, or their population.\* During great part of the year, thick fogs gather every night in the bottom of this valley, and as it were, transform it into a vast lake. All the surrounding villages, mostly built upon peaks, doubtless to protect them from the bad air, have the appearance of islands; and it is a cu-

\* This remark is designed to answer those who attribute insalubrity sometimes to the absence, and at others to the presence, of one or other of these circumstances.

rious sight at sun-rise to view some of them immersed, so as to show only a few points, others entirely clear, bespeaking with equal certainty their respective degrees of elevation, as well as the degree of salubrity of the air breathed in each.

Monte Mario, which adjoins to Rome, and shares all the insalubrity of the neighbouring country, is, according to Breyslack, 143 yards above the level of the sea. Tivoli, which, according to the same writer, has an elevation of 208 yards, is infinitely more healthy. According to very accurate measurements, communicated by M. de Prony, Sezza, whose inhabitants seem upon the whole out of the reach of the bad air, is 306 yards above the Pontine marshes. The village of St. Felice, on the mountain of Circe, on the other side of the marshes, which is only 114 yards, and still lower down the environs of Terracina, which is 38 yards, are more and more exposed to the malignant influence of the miasma that rise from them. It would seem, therefore, that the limit to which they are confined, is somewhere between 208 and 306 yards above the level of the places from which the poison issues: but I have reason to believe that it cannot be fixed in an absolute manner, and that it varies from year to year according to the heat, the wind that blows, and also the intensity and duration of both.

Velletri, for example, which is 56 yards higher than Sezza, seems to me to be more exposed to the diseases arising from bad air than the latter place. Such at least is the result of the information which I collected

on the spot, and which I believe to be accurate. The cause is probably this:—Sezza is seated immediately above the marshes, upon a rock, against which the west winds, charged with miasmata, break in their course: and Velletri, on the contrary, being situated on the north of those marshes, on hills rising with a gradual ascent, the south winds are carried thither, without encountering any obstacle, excepting woods and forests, where there are any.

It is necessary also to pay regard to the relative height of the place which is the focus of the infection; for if it is situated on a mountain (like the pond of Col Fiorito, above Foligno, on the declivity of the Appennines,) the air there is more rarefied, the barometer stands much lower and the miasmata will not, of course, be carried to the same height.

The observations of some eminent travellers support this remark. According to M. Von Humboldt,\* the farm of Encero, situated above Vera Cruz, is not affected by the insalubrity which prevails all along that coast; and he elsewhere states that the marshy lakes situated in the elevated valleys of the Corderillas of Mexieo cause frequent and fatal epidemics.

M. de Volney says the same concerning Syria. The latter and M. de la Rochefoucalt relate similar facts, and speak in like manner of the greater salubrity of the air upon the mountains of the United States, and also of the unhealthiness of the elevated plains which surround the great lakes of North America.

\* *Essai politique sur la Nouvelle Espagne*, T. iv. p. 524.

M. Von Humboldt also gives us the elevation of the farm of Encero, 928 yards, as the highest limit of the yellow fever, and the lowest limit of the vegetation of the oak.

Section II.—*Miasmata have no smell by which they can be distinguished. They may be separated from the odorous substances with which they seem to be most intimately blended. I mean not to assert that a disagreeable smell does not frequently accompany air charged with deleterious miasmata; that the circumstances of their production may not often be the same, and that the sensation of the one does not render probable that of the other; but they must, nevertheless, not be confounded.*

There are few persons but know and dread the peculiar odour emitted by stagnant waters: it has something disagreeable and sickly, which seems to warn us not to approach places where it is perceived; it may, however, be inhaled without any ill effect in certain seasons of the year. I have myself been several times exposed to it, and not I alone. In 1810 and 1811, in passing the numerous ponds which cover the sea coast of the Ecclesiastical State, at Maccharese, Ostia, Follignano, in the Pontine Marshes, which I have repeatedly traversed in various directions, I have always perceived this peculiar smell, without sustaining any inconvenience from it. The following year, on the contrary, on a very hot day in the beginning of September, among the ponds of Vauvert, between St. Giles and Aignes Mortes, in Languedoc, I was suddenly seized with nausea and a feeling of sickness, which

lasted several days, though I remarked, at the time, that no kind of odour was emitted by the marsh.

Some time afterwards, in the same place, the wind blowing from the south-south-east, and passing over parts of the ponds which were half dry, brought with it a very strong and disagreeable smell, that penetrated through the doors and windows, though we paid the greatest attention to keep them closely shut, filled the whole house, and yet occasioned no farther inconvenience to my assistant and myself, than the unpleasant impression which it produced on the olfactory organs; yet its arrival, or, more properly speaking, its passage, was marked all around us by a great number of new patients and new fevers. Since we found means to escape disease, though we could not preserve ourselves from the bad smell, it is evident that these two things were not identical, and that a separation of them had taken place. The principle of insalubrity did not penetrate into the house, while that of the bad smell gained a free passage.

The most offensive quarters of a city, are sometimes the most healthy: in some countries, on the other hand, in a climate apparently more pure, in moments when we inhale, as we think, an air embalmed with the perfumes of plants, this fresher air of a fine evening or morning, which seems so agreeable, is in reality a poison, against which there is nothing to put us on our guard.

Dr. Valentin expressly says, that "the atmosphere is sometimes charged with deleterious and destructive

miasmata, when the smell can distinguish no quality in, it and the respiration is not in the least affected."\*

Section III. *It is much more dangerous to inhale bad air in the night than in the day time. All the hours of the day or of the night are not attended with equal risk. The least critical moment is when the heat is greatest, and the sun highest above the horizon. The most dangerous is that which accompanies the setting, and that which precedes the rising of the sun.*

This observation, which applies to all times and to all places, proves to demonstration the union of miasmata and aqueous vapours; the former are heavy, the latter, possessing extreme levity and dilatibility, lend them wings: it has been found that they hold even particles of sea-salt in suspension. Raresfied in the middle of the day by the heat, the more elastic and lighter vapours must then occupy more space in the atmosphere; the miasmata which they carry with them, must also be at such times more widely diffused; we do not, therefore then inhale them in such large doses in the same volume of air, and consequently cannot, in those hours, be so much affected by them.

But if the heat decreases, the vapours become condensed, and fall; the deleterious particles swept along with them sink to the lower strata of the atmosphere, and there accumulate; they keep their station there during the night; others continue to descend, and sun-rise, which is usually marked by a sensible refrigeration of

\* *Traite sur la Fievre jaune d'Amerique, 8 vo.*

the air, will also be attended with a fresh precipitation of vapours which will render that moment still more critical.

The evening dew is so much dreaded at Rome, that as soon as it begins to be perceived, all the inhabitants shut themselves up in their houses; but the moment this first and copious precipitation of vapour, which generally accompanies the close of a hot day, seems to be over; they all sally forth, again, and the streets are more crowded than ever. The dew has always been considered as extremely pernicious in countries where bad air is generated; experience has, in like manner, taught their inhabitants to defend themselves from the damp of night, and especially from the coolness of the morning. The people of Italy, and I suppose of all countries where the air is bad, never go abroad, unless absolutely obliged, till after sun-rise, when the heat has dispersed the pernicious vapours that have fallen during the night.\*

Hence we see that the mass of deleterious miasmata which vitiate the air, must be perpetually varying in the lower strata of our atmosphere; that a certain accumulation of them must take place before they can be really pernicious to health, and occasion very dangerous diseases.

Hence also we learn the reason why low places are much more unwholesome than others situated close by

\* These statements strongly corroborate the observations which I made many years ago on this subject—especially on the fall of febrifac miasmata with the dews.—*Vide Sec. 1. Eastern Hemisphere*, p. 62.

them, but somewhat higher: the air, charged with miasmata, flows, in a manner, from all the neighbouring declivities, borne down by its gravity. Hence it is that the defiles of Ardea are uninhabitable.

For the same reason it is dangerous to sleep upon the ground in unhealthy situations. More than one instance has occurred at Rome of persons who have lain down in such places to sleep, and never risen again: the lower you are, the denser are the strata of miasmata. Soldiers are obliged to bivouack in all situations indiscriminately, and to pass whole nights in the open air; and thus it is that the finest armies are frequently reduced and dissolved in a short time.

Hence also most assuredly arise those very perceptible differences between the air of the valleys and that of the surrounding eminences; and between the air of the valleys and that of the open plains, even when that of the former cannot be considered as unhealthy. If the elevated strata let fall their miasmata, it is to infect the lower with them: whatever they may be, they are carried to the bottom of these funnels; and it is obvious that great plains, not surrounded by higher grounds, are not subject to this disadvantage. Whence proceeds this extreme difference? Not from a greater proportion of eminently respirable air—not from a greater proportion of oxygen, as once imagined; but it depends on certain atoms which have hitherto escaped our best eudiometers.

It is obvious that every sudden, rapid, and considerable change in the temperature of the air, or merely the crossing of two winds, the one hot and the other cold,

may be very dangerous to health, if the atmosphere of one of them is charged with miasmata. Accordingly, the season in which these sudden variations are most frequent, particularly autumn, when the days are still warm and the nights cold, will be the most critical of the year, and not cease to be so, till the cold, checking the formation of the miasmata and the supervening rains, shall have purified the atmosphere, and renewed the water of the ponds and marshes.

I have shewn that the aqueous vapours part from the miasmata which they have carried away as soon as they attain an elevation at which their combined weight surpasses that of the atmospheric air. We have seen that these miasmata are much less subtle than the air, or than the principle of smells; since air and odourous effluvia penetrate into every place, whereas miasmata are stopped and expelled by various obstacles.

Section IV.—*The interposition of a forest, a mountain a high wall, or even of a mere cloth, may also co-operate in this separation, and preserve us, in a variety of circumstances, from the pernicious effects of the air charged with deleterious miasmata.*

Upon Mount Argentel, above the village of St. Stephano, there is a convent which has lost all the reputation for salubrity which it once enjoyed, since the lofty trees by which it was surrounded have been cut down.

I have been informed by persons worthy of credit, that in consequence of the felling of the wood before Asterna, near the Pontine Marshes, Veletri was visited for three successive years by diseases which made much

greater havoc than usual throughout the whole country, and penetrated to many places which they had not previously been accustomed to reach.

I have seen poor fishermen who had taken up their abode near the canal which runs from Campo Salino to the sea; they had built their hut close to a wood that screened them from the direct access of the infected winds which pass over that morass; and declared that they never suffered any inconvenience from them so long as they remained under that shelter.

Volney states a very remarkable fact relative to this subject. "Bairaut," says he, "formerly very unhealthy, has ceased to be so since the Emir Fakr-el-din planted a wood of fir trees, which still exists, a league below the town. The Monks of Marh-anha, who are not systematic natural philosophers, have made the same observation respecting different convents.

Lancisi, a physician of sound judgment and veracity, cites a great number of examples which prove the utility of woods situated between the inhabited places and marshes; and several that demonstrate the dangers resulting from the destruction of them.\*

About the end of 1810, I was at Civita Vecchia.— Passing through St. John's Place, which is a pretty regular square, I was shewn one whole side where the in-

\* He asserts, in one of his works, that the consecration of woods and groves had originally no other motive than this.

Bapt. Donus, in his work, *De restituenda Salubritate Agri Romani* [1667], recommends the planting of pines and other trees between Rome and the Pontine Marshes, to intercept the miasmata wafted from them by the south-west winds.

habitants had been much afflicted with diseases occasioned by bad air, while those on the opposite side had almost all escaped. What could be the cause of such an extraordinary difference between houses so near to one another? Dr. Nucy an intelligent physician, pointed out to us that the former faced the south, so as to receive directly the south-east winds which arrive saturated with miasmata from the marshes on the coast.—The latter, on the contrary, which fronted the others, received those winds only in an indirect manner and by reflection. When those winds blew they were certainly inhaled by all the inhabitants of the place alike, so that there could be no other difference between them in this respect than that which has just been mentioned.\*

I passed some time afterwards through Nettuno, a small town likewise situated on the coast between Capes Antium and Astura, not far from the Pontine Marshes and still nearer to those of Foce verde, Follignano, &c. A striking difference was perceptible between the look of the inhabitants of the town itself, and those of the suburbs; a very great proportion of the latter appeared pale and sickly.—I was puzzled to account for this circumstance, when the mayor desired me to observe that the town was much nearer to the sea; that it was surrounded with high walls, and that

\* The following fact is of much higher antiquity but not less striking:—*Hic Varo noster cum Corciræ esset, exercitus ac classis et omnes domus repletæ essent ægrotis ac funeribus, emisso fænestris novis aquiloni, et obstructis pestilentibus, januæque permutata cæteraque ejus operis diligentia, suos comites ac familiari incolumes reduxit.*—Varro de Re Rustica lib. I.

its streets were narrow and crooked; on the other hand, the few houses forming the suburbs, standing farther inland, were more exposed to the winds, and had nothing to shelter them from their influence.\* Very near this place, in the gulf of Astura, ancient buildings or ruins are to be seen at the bottom of the water.—From Nettuno to Antium, and considerably beyond it, other buildings of considerable magnitude are observed standing close against the foot of the rocks that project into the sea. When we consider that a great number of ponds and morasses rendered this whole coast unhealthy, we are at a loss to conceive how edifices of such importance could have been erected in such situations; but we ought to recollect that as the Romans had upon this coast ports which were much frequented, and at which great part of their commerce was carried on, so it was absolutely necessary for them to reside there. They were consequently obliged to seek the means of preserving themselves from this insalubrity. Now by building upon the beach, close against the rock, they were screened from the unwholesome land winds, and received none but the sea**breezes**, from which they had nothing to fear. The fishermen who keep constantly

\* The subjoined passage also proves that the Romans had discovered this effect of narrow and crooked streets. On occasion of the burning and rebuilding of Rome by the Emperor Nero, Tacitus says *Ex ea utilitate accepta, decorum quoque urbi attulere; erant tamen qui crederent veterem illam formam salubritatem magis conduxisse quoniam angustia itinerum et altitudo non perinde solis vapore perrumparentur, ac nunc patulam latitudinem et nulla umbra defensam graviore æstu ardescere.*—(Ann. lib. XV.)

upon the water, at a certain distance from this coast are never incommoded by the bad air.

In the gulf of Pozzuoli I met with a great number of other edifices of the same kind, built close against volcanic rocks which run out into the sea; their foundations also are under water, and this situation was probably selected on account of the same circumstances, for on the other side, immediately behind these rocks were, and still are, very extensive insalubrious marshes.

In one of the most unhealthy corners of the Pontine marshes I found a man who had for several years been employed there in making charcoal from turf. During this period he had never been afflicted with any disease, and when questioned respecting a circumstance so very extraordinary in such a place, he ascribed the preservation of his health to the following precautions. He made a particular point of returning by sun-set to his hut, where he kept a continual fire; he never left it again till late in the morning, and remained near his furnaces in the day-time. It is obvious that the miasmata either did not penetrate into his hut, or if they did, the vapours combined with them were rarefied by the heat of the fire, and carried off by the currents of air which this fire incessantly produced. In the day-time the exhalations were dilated by the heat, and repelled by the smoke of the furnaces about which he was engaged. This man so well instructed by experience, had a florid complexion, and a totally different look from the people of the country, who, taking no

precautions, are annually exposed to a mortal disease, and generally drag on a truly pitiable existence.

During my residence near the marshes of Languedoc, I lived near a very fine building, formerly the convent of Franquevaux, erected on the very border of the marshes. The monks in this house were perfectly healthy all the year round, though few of the inhabitants of the environs escaped disease in summer or autumn. Tradition nevertheless relates that they were accustomed in hot weather to sup on a terrace contiguous to the convent—a sure method of exposing themselves to disorders; but they were sheltered by a tent of double or triple canvas, and this simple precaution, requisite against the mosquitoes, proved, unknown to them, a still more certain protection against miasmata.

How often has it been observed at Rome that many of the convents of that city are not exposed to the bad air, and that those religious who never went abroad were invariably exempted from the diseases which it occasions! In certain hospitals there are healthy wards by the side of unhealthy ones Dr. Michel, who has long practised physic at Rome, mentions those that are to the south and south-east as insalubrious in the hospital of St. Spirito which is otherwise reputed to be very healthy.

The malefactors confined in the prisons of the same capital never contract there the diseases which make such havoc every where else. Volney has a similar observation respecting the prisons of Philadelphia into which the yellow fever was never known to penetrate;

indeed he ascribes this effect to sobriety, temperance, and cleanliness; but these qualities cannot be attributed to the prisons of Rome. The inmates, however, are equally protected from prevailing epidemics, so that some other more efficacious and more immediate cause must operate unknown to us. This cause, which an attentive examination of the properties of miasmata has unfolded to us, is seclusion.

*Seclusion, so successfully practised, in cases of contagion, may be employed with equal benefit in case of the mildest epidemic fevers.* It affords you a not less salutary defence against the slightest indisposition, a cold in the head, than against the most dangerous diseases. The very same preservative means by which you may protect yourself from the most serious and fatal disorders are efficacious in defending you from fever in its mildest form.

If I had to direct the inhabitants of a town attacked with alarming epidemic disease, I would not enter into any discussion of the causes that produce or propagate the contagion; I would let all the precautions adopted in such cases remain as I found them; I would not attack any opinion or any prejudice; I would not meddle with any of the measures tending to allay the public anxiety and alarm; but if the evil were very urgent, if there were already a patient in every house, I should not think of removing them for fear of the farther spreading of the disease within; but I would immediately enjoin the general seclusion of all the citizens; I would enforce the order by the point of the bayonet;

and till the purity of the atmosphere should appear to me to be completely restored, public functionaries should supply the wants of the inhabitants, and keep up such communications as are indispensably necessary.

In 1720, when the plague raged at Marseilles M. de Vauveneargue, governor of Aix, to which town it had already penetrated "despairing," (says M. Papon in his *Histoire generale de Provence*) "to arrest the progress of the disease, by the ordinary remedies, proposed to the minister to put all the inhabitants under quarantine in their houses. *No sooner had the quarantine begun than the disease considerably abated*, and there were scarcely any sick when it was taken off. Joy and liberty were then restored to the citizens, but a relapse *the causes of which are not known*," says the historian, "soon disturbed the public tranquility. The *quarantine was renewed* with the same strictness as before, and the *contagion entirely disappeared* before it was over. From an unaccountable, prejudice," adds M. Papon, "the physicians whom the king had sent to Marseilles, asserted that the disease was not contagious."

I would order such of the citizens as were not absolutely obliged by their business, not to go abroad till long after sunrise, and to return home a little before sun set. For workmen habitually employed in the open air, and soldiers who must be at their post day and night, I would devise some simple thing or other to be placed before the organs of respiration, so as to intercept the insalubrious particles mingled with the air they breathe. This might be a piece of fine cloth or gauze, in one or more

folds, and I would fasten it over the face, because I have reason to think that it is upon the pituitary membrane in particular that miasmata settle and accumulate by consequence of the repeated movements of respiration. Frictions with oil, where there is no denudation, excoriation, or wound of the skin, seem to me to be of very little benefit.

With some alterations easily made, still more easily conceived, and by no means expensive, if directed with intelligence, I would have a hospital, a prison, or even a house situated in the midst of the most unhealthy tract of country, so contrived that their inhabitants should have nothing at all to fear from the air they would breathe, so long as they kept at home. I would leave lateral apertures, but which should admit light alone; the air should not reach them except by winding channels, and after it had been filtered: it should have no outlet but by large vent-holes in the roof, and it should be expelled through them by the very nature of the properties of that element, in which variations of temperature produce perpetual currents.

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## SICILY.

*“ Jamque in conspectu Siculæ telluris.”*

SEC. VIII.—The climate of Sicily is always oppressively hot in summer, and seldom very cold in winter. Between April and August there is little or no rain; towards the end of the latter month the rains begin, but

the heat continues till the middle of September, when it rapidly declines. From November till May, the heat is moderate, the mureury ranging from 50 up to 65 or 70°. In the summer months, and particularly in July and August, the thermometer averages 86 in the day, and is but a very few degrees less in the night. Sudden vicissitudes of temperature, however, are considerable—20 or 30 degrees in the twenty-four hours. Of course, local inflammations and congestions are common, and *phthisis pulmonalis* is frequently fatal.\* Here, as in most hot climates, the houses are more calculated for counteracting heat, than resisting cold, or preserving an equilibrium of temperature. Stone floors and unfinished casements ill suit the delicate frames of the consumptive in winter; while in summer, the sensation of heat is so great, that many expose themselves to dangerous transitions rather than bear excessive warmth within doors. It is in this way, that many refer the origin of their pulmonary complaints to the most fervid season of the year. *Light* rains in autumn are observed to be unhealthy—evidently from their putting the surface of the earth in a state capable of evolving febrifacient effluvia; whereas, nothing is so salutary as *heavy* rains about the middle of September, which at once mitigate the heat and check the extrication of miasmata.

Sicily is penetrated in several directions by ridges of primitive hills of considerable height: between these

\* Hepatitis, according to the testimony of Irvine, frequently occurs in Sicily.

are numerous water courses, which are dry in summer, and occasionally filled by torrents in winter. They are designated by the Sicilians, FIUMARI, and are used as roads in the dry season. Many of them are extremely unhealthy in the latter part of the summer, and in autumn, and infested by what the natives term *malaria*. The state of this *malaria* varies much according to the state of the season. A very wet season will overwhelm, as it were, the sources of this febrile, while a very dry one will so parch up the surface of the earth, as to produce a similar effect. At *Lentini*, however, around which, the country is marshy, with a considerable lake in the vicinity, the ground is partly freed from water in hot weather, but is never so dry as to prevent the formation of miasmata. Here there is a *malaria* every year. In many of the *fiumares* the stream disappears in the gravel, and percolates under the surface to the ocean. Thus at the bottom of the large *fiumare* which bounds Messina on the northern side, fresh water will be found at a foot depth close to the sea. It is in these kinds of *fiumares* that a *malaria* prevails, according to the opinion of the natives, throughout the year; and this probably accounts for the extrication of miasmata in many parts of the West Indies, as well as Europe, where there are apparently no materials for their production. Thus some places in Sicily, though on very high ground, are sickly; as *Ibesso* or *Gesso*, about eight miles from Messina, situated upon some *secondary* mountains lying on the side of the primitive ridge, which runs northward towards the *Faro*, which

Has always been found an unhealthy quarter for English troops. It stands very high; but still there is higher ground at some miles distance. Water is scarce here, and there is nothing like a marsh.—At this station, however, sickness seldom occurs “unless after rains falling while the ground is yet hot, that is during the heat of summer, or early in autumn, when all circumstances combine for the production of miasmata.”

*Irvine* p. 6. This may apply in elucidation of the Gibraltar fever. “I remember, says Dr. Irvine, a muleteer passing over the hills near Obessa, in the middle of August, during a heavy rain, who remarked that these rains falling on the heated ground would cause a stink (puzza) and that many would be poisoned.” *ib.*

In Sicily the north wind is cold—the west rainy—the south-east is the celebrated Sirocco, which seems to derive its noxious qualities from heat combined with dampness.—Here, as in most sultry latitudes, the summer and autumn are the unhealthy seasons.

The fevers of Sicily have been divided into three classes, those of summer, autumn, and winter. Those of summer have appeared to Irvine, Boyle, and others, to be of an inflammatory nature—to be principally owing to excessive heat—intemperance, and inordinate exercise. The head seems to bear the onus of disease. Dr. Irvine bled from the temporal artery, repeating the operation *pro re nata*. Blisters were applied to the head, and purgatives were administered internally. The cold affusion was then applied on the principles of Dr. Currie. “I never, says Dr.

Irvine, in any one instance, saw the bleeding fail to remove the pain of the head, and when delirium was present, it lessened also that.” 24. “ Encouraged by the alleviation of the symptoms I persisted in my plan. I bled a third time from the head, and blistered again between the scapulæ, continuing the cold affusion. The number of times that this treatment was repeated was necessarily regulated by the effect produced. I never had occasion, however, to bleed more than four times. But the standard rule of my practice was to continue the bleeding and blistering of the head while any degree of head-ache remained, or any symptom of determination to the head was visible.” *ib.* Dr. Irvine found the bleeding pave the way for, and render more efficacious the cold affusion, which when applied without this preliminary, afforded only transient relief.

“ The appearances on dissection were somewhat various. In some cases, nothing very remarkable could be, or was discovered in the brain or its membranes. In others the cerebral veins were turgid with blood. In many there was a red spot on the dura mater, about the middle of the longitudinal sinus, of the size of a dollar. Sometimes a little pus, or rather inflammatory exudation appeared upon this spot.” *Irvine p. 36.*—“ I find it difficult, says Dr. Irvine, to reconcile the facts here stated, with the ingenious opinion of Dr. Clutterbuck. I do not think that phrenitis, or any analogous disorder of the brain, often, far less always, exists in fevers.” *p. 62.*

In the autumnal fevers of Sicily, a great many, when the disease was violent “ became excessively yellow”

without any alleviation of their disorder. The stomach is more irritable—the vomiting is bilious, and of a dark green colour—the region of the liver sometimes tender. These run out to a much greater length than the summer fevers, but only differ from them in being accompanied with earlier prostration of strength.” “I can safely state, says Dr. Irvine, that the same sort of treatment which I have used in the summer fever, also, proved successful in these.” 45. Purging, however, was more necessary, and calomel and James’s powder were found useful in protracted cases. “Touching the mouth with mercury is sometimes useful in cases where the yellowness is great.” 47.

The winter fevers, according to Irvine, had nothing remarkable in their phenomena or progress; but ran a course analogous to the ordinary cases of *Synochus* in England. “They hardly ever fail to yield to the four grand means of tropical bleeding [arteriotomy] blistering—cold affusion, and purging.” 60.

To the above observations by Dr. Irvine, which appear, on the whole, judicious and correct, I shall add some from the pen of Mr. Boyle, who, in my opinion, has given a more rational explanation of the symptoms, while his *Methodus Medendi* is equally effective as Dr. Irvine’s.

When the epidemic first appears, says Mr. Boyle, in the early part of autumn, the fever preserves nearly a continued form, and only remits after the violence of the excitement has been subdued. It bears a strong analogy to the bilious remittents of all warm climates—

is closely allied to the fever which visits other points of the Mediterranean shores, and seems to differ only in degree from those great endemics which have repeatedly ravaged the western hemisphere.

"In Sicily, says Mr. Boyle, this fever usually makes its appearance about the same time that cholera morbus and other disorders of the biliary organs are known to prevail, and both diseases seem to arise from causes of nearly a similar nature. It indeed appears to be essential to the production of this fever, that a considerable diminution of temperature, accompanied with much humidity of the atmosphere, should suddenly succeed to the long-continued heat of summer. By those causes, an important change is effected in the *balance of the circulation*, causing an unusual determination to the abdominal viscera, and producing congestion or inflammation of the hepatic system, in various degrees, followed by an increased and vitiated secretion of bile."

*Ed. Jour. vol. viii. 184.\**

The succession and order of the symptoms, marking the different stages and types of this fever, will be readily explained by the appearances on dissection, and seem to depend chiefly on the degree of inflammation, and the sensibility of the part concerned. When the liver is very violently affected, the symptoms sometimes even resemble those of hepatitis, and which more especially appear at the commencement of the fever; and in-

\* The reader will not fail to perceive the coincidence of Mr. Boyle's ideas with my own, though the writers were separated by many thousand miles at the time.

flammation of the stomach is sufficiently characterized by the anxiety, restlessness, vomiting, and prostration of strength, which immediately follow.

As a common consequence of extensive peritoneal inflammation, we sometimes find a quantity of serum effused into the cavity of the abdomen, and various adhesions formed between its parietes and the contained viscera; and the omentum at other times so much wasted, as to resemble merely a tissue of red vessels. The liver almost always exceeds its natural size, and is also considerably altered in colour and texture. It is always softer than natural; and the system of the *vena portæ* is always turgid with blood. The peritoneal covering of the liver is often thickened and opaque, and is sometimes studded with white spots, or with flakes of coagulable lymph. Sometimes its surface is irregular, and small indurated portions are discovered on its convexity, which, when cut open, are found to proceed from obstruction of some ramification of its excretory ducts, produced by inflammation of its coats, and favouring the accumulation of viscid bile—. The coats of the cyst generally partake of the inflammation. The colour of the bile it contains is various, and it is sometimes so viscid and thick, that it can scarcely be forced out by strong pressure.

A remarkable alteration also takes place in the appearance of the spleen. It does not always, however, exceed the natural size, but its softness is often such, that it can only be compared to a mass of coagulated blood; while, at other times, it has an unusual degree

of hardness, with thickening and whiteness of its peritoneal coat.

The stomach is frequently found contracted and empty, or inflated with air, or distended with variously coloured fluids, and even pure bile. Sometimes inflamed spots are discovered on its peritoneal coat; but the internal surface is the most frequent seat of the disease. The texture of the villous coat is often completely destroyed, and it exhibits an uniform red, of the deepest hue, in several places approaching to a livid colour, and is covered with coagulable lymph, or a secretion of puriform matter tinged with blood. In other cases, the inflammation is more limited, and appears in rosy patches over its internal surface, or in numerous minute red specks.

This inflammation is never of the phlegmonous kind, but like true erythema, successively invades one part after another, frequently creeping along the whole course of the alimentary canal, attended with thickening and pulpiness of its coats.

The brain and its membranes shew no uncommon appearances, or marks of previous inflammation.

The lungs are not affected, but I have often found a large quantity of serum, of a yellowish colour, collected in the pericardium, while the heart seemed to have suffered from inflammation; and, in two or three cases, I observed white patches of coagulable lymph, apparently converted into firm glistening membrane, easily separated from its proper coats, on different parts of its external surface.

Such, indeed, is the rapid progress of the disease, and the great delicacy of the organ principally concerned, that our measures must necessarily be prompt and vigorous; and under whatever varieties it may appear, with respect to type, the local symptoms always require our first attention, and indicate the necessity of copious evacuation of blood. If the fever be of the continued form, under such treatment it very often becomes intermittent, and when of this latter form, we thereby prevent its being changed into a more dangerous type, in the course of its progress.

From the use of this remedy, we are not always to be deterred by the smallness of the pulse; and even if deliquium should come on after the abstraction of a few ounces of blood, the operation may be repeated soon afterwards, without the occurrence of the like accident.

The indiscriminate use of the term *debility*, derived from some of the more general phenomena of disease, without regard to its essence or cause, has led into egregious error in the treatment of this, as well as of some other complaints, which are commonly considered as simple idiopathic fevers. The anxiety, langour, restlessness, and prostration of strength which accompany this epidemic, are not symptoms of debility, but of gastritis, and depend on the peculiar structure of the organ, and its extensive sympathy with the whole system. A free use of the lancet is required; and, in order that this remedy may be productive of beneficial effects, it must be had recourse to at an early period of the disease. Even when the disease was too far advanced for any

permanent advantage to be expected from venesection, its effects have been discovered by a temporary increase of fulness of the pulse. What is here said, applies equally to general and local blood-letting; and this last mode may be employed with considerable advantage.

In the inflammation of all delicate and highly sensible membranes, unless we succeed in the first instance, we in vain attempt to subdue it afterwards, by acting on the arterial system at large, and still further diminishing the *vis a tergo*: for the disease makes rapid progress; the texture of the organ is speedily destroyed, and its vitality is irrecoverably lost.

Recourse must, therefore, at the same time, be had to such means as possess some controul over the vessels of the part, suitable to its peculiar functions and organization; and the effects of local blood-letting, by the application of a number of leeches to the region of the stomach, are to be further assisted by large and repeated blisters.

Nothing so much aggravates all the symptoms, as the presence of acrid bile, and accumulated feculcnt matter. All irritation, therefore, from such causes, is to be carefully prevented; and, with this view, the contents of the intestines are to be dislodged on the first approach of the disease, and their accumulation cautiously guarded against during its continuance. For this purpose, small doses of purgative medicines must be frequently administered. It too often happens, however, that the irritability of the stomach is such, that medicines of this class cannot be retained, but are in-

stantly rejected; and recourse, therefore, must also be had to large emollient and laxative glysters, which must be frequently injected, and are in all stages of the fever, of the most essential service. As a purgative, no medicine is so well adapted to this complaint as the submuriate of mercury; and its operation may be sometimes advantageously alternated with the use of sulphate of magnesia dissolved in water, and plentifully diluted.

The effects of mercury, however, are not to be estimated solely by its purgative quality; but it seems to be chiefly useful on account of its specific action on the hepatic system, and its power of affecting, through the medium of the circulation, secreting surfaces endowed with high irritability, and in a state of inflammation. This remedy is, therefore, to be used externally, as well as internally; and is to be resorted to immediately, as the most powerful remedy we possess in the treatment of this disease. Its effects, however, do not always depend on the quantity introduced; but on certain conditions of the system, by which the latter is rendered more or less susceptible of its action, and which I do not pretend to explain.

This susceptibility is indicated by the effects produced on the salivary glands; some degree of ptyalism follows, which affords the surest prognostic of a favourable termination; and the change produced in all the symptoms is generally quick and rapid. It sometimes, however, happens, that the largest doses will not produce salivation, and, in such cases, the event is invariably fatal.

From the rapid manner in which we are frequently indued, on account of the severity of the disease, to introduce this medicine into the system, copious salivation is frequently occasioned, and often appears suddenly, with bleeding from the gums; but as no advantage is to be expected from the mere secretion from the salivary glands, I have succeeded equally well, after having ascertained its influence over the disease, by continuing its use in small doses, merely sufficient to keep up the mercurial irritation in the system, until the disease was completely overcome. From what has been said, it needs scarcely to be observed, that the practice of besmearing the gums with mercurial ointment, or rubbing them with calomel, for the purpose of encouraging this secretion, is extremely ineffectual.

Sometimes severe diarrhœa comes on during the early stages of recovery, attended with want of sleep; in which case, I have derived the greatest advantage from small doses of opium, combined with calomel.

We are usually advised, in *all* fevers which shew a tendency to intermit, to watch this period carefully; and to avail ourselves of the earliest opportunity such circumstances afford, of exhibiting bark in large doses, with a view to obviate the *debility* which, it is said, predisposes to the formation and return of another paroxysm. That in *some* fevers, and in certain habits and constitutions, this may be highly expedient and advisable I do not venture to deny, as such practice stands supported by the best authority, and is justified by ample experience.

Without entering, however, into an examination of the above principles, which generally directs its use, I feel myself warranted to affirm, from the result of several cases in which this plan was adopted, in *the fever now under consideration*, that bark served only to exasperate the local disease, and to aggravate every symptom of the succeeding paroxysm.

In many cases which occurred towards the final cessation of the epidemic, at the close of the autumnal season, the local symptoms were much milder, and the fever became intermittent, after a moderate evacuation of blood, and a free use of laxative medicines. In those cases, calomel was the medicine I chiefly employed; and I almost invariably observed that, when carried to an extent sufficient to manifest its action on the system by the usual criterion, the paroxysms soon after ceased to return."—*Ed. Journal.*

The testimony of such a man as Boyle in favour of the *union* of depletory measures with a mercurial treatment, will have some weight; and, in conjunction with the various documents brought forward in this essay, must remove all doubts on the occasional necessity of such a modification of practice.

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### MALTA.

SEC. IX.—The climate of this Island, so celebrated in the annals of war and chivalry, and now so important a point of strength in the insular empire of Eng-

land, need not detain us long. Its salubrity, mildness, and equality have indeed been much exaggerated by the late Dr. Domier; nevertheless it is still remarkable for comparative dryness of soil and atmosphere—paucity of rain, brightness of sky, and exemption from great and sudden transitions of temperature. The difference of temperature also, between day and night, is not so great as in Sicily or other Mediterranean Islands, owing to the flatness and calcareous nature of its surface.

Here are few thunder storms, or gales of wind—little or no dew—hardly any fog. On these accounts *pulmonary consumption* is much less prevalent here than in other contiguous situations—even than in Portugal or the south of France. But the dry chalky soil *reflects* a distressing heat in the summer months, when the thermometer ranges from 84 to 90 degrees in the shade. As there is no favourable source for the formation or extrication of miasmata, so there are no endemic fevers. In times of war, however, when great bodies of our seamen were occasionally exposed to the intense heat of the sun, violent exercise in refitting and watering, inebriety, &c.—then bilious and inflammatory fevers, with great determinations to the head and hepatic system, were common enough. They were subdued by the depletry and mercurial plans already detailed.

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## EGYPT.

SEC. X.—Independent of those sensations of pride which every Briton must feel at the mention of Cairo,

Alexandria, or the Nile, the memorable theatres of British valour. Egypt presents an interesting link in the medical topography of tropical and tropicoid climates. Stretching, in the shape of one of its own pyramids, from Cancer to the Mediterranean, and flanked on both sides by burning sandy deserts, the thermometrical and barometrical qualities of its atmosphere bear little similarity to those of parallel latitudes; and hence the influence of this anomaly in climate on the health of the human race, is a matter of useful enquiry.

The thermometer at noon, in the shade at Cairo, averages  $97^{\circ}$  in the months of May, June, July, August, September, and October, with a diurnal vicissitude of 30 or 40 degrees. In the winter months, it averages  $70^{\circ}$  and is never seen below 40. During the hot season, from March till November, the air is inflamed, the sky sparkling, and the heat oppressive to all who are unaccustomed to it. The body sweats profusely, and the slightest suppression of perspiration is a serious malady. The departure of the sun tempers, in some degree, these heats. The vapours from the earth soaked by the Nile, and those brought from the sea by northerly and westerly winds absorb the caloric dispersed through the atmosphere, and produce an agreeable freshness, which causes the susceptible Egyptian to shiver with cold; excepting in the winter, and near the sea, a shower of rain is rarely seen. The winds vary in their temperature and dryness or humidity, according to the point from whence they blow, and the season of the year. From the north and west they are moist and

cool, as passing over the ocean; from all the other points they are hot and dry, as coming over vast tracks of burning sand. The south wind, in particular, is called the *Kamsin*, *Simoon*, *Samuel*, &c. the heat of which is similar to that of a large oven at the moment of drawing out the bread. The atmosphere now assumes an alarming aspect—the sky becomes dark and lurid—the sun loses his splendour, and appears of a violet colour. This wind increasing gradually as it continues, affects all animated nature. Respiration becomes difficult—the skin parched and dry; and the body is consumed as though by an inward fire, for no quantity of drink can restore the perspiration. In December and January, however these southerly winds are *cool*, as they then come over the snow-capt mountains of Abyssinia, the sun being at his farthest southern declination.

Now, as, in summer, the most prevalent winds come from the Mediterranean sea, impregnated with aqueous particles, so copious dews are precipitated in the nights of this period, all through the delta in particular, occasioned by, and increasing the diurnal transition. Thus at Alexandria, after sun-set, in the month of April, the clothes exposed to the air, and the terraces are soaked by the dews, as though there had been a fall of rain. To this it may be added that a portion of the valley of Egypt is annually overflowed, for two or three months in the summer, by the waters of the Nile, either by natural inundation, artificial canals, or machinery.

If this slight medico-topographical sketch, be com-

pared with what I have said respecting Bengal and the Coast of Coromandel, it will, at once, be perceived that the climate of Egypt combines, in a considerable degree, the peculiarities of both the former. It has the *inundation* from its central river, as Bengal;—it has its *samiels* or hot land winds, with an excessively high range of temperature, as Madras. Now if these two peculiarities equally prevail in Egypt, we may expect to find an equal ratio of the diseases peculiar to the two Asiatic localities above-mentioned; whereas if we find one of the climates predominate over the other, and also one of the classes of disease obtain a proportional superiority, it will surely go far to elucidate and confirm the origin and nature of those endemics peculiar to the two oriental provinces, described in the early part of this work.

*First*, the inundations of Bengal and Egypt are very different. Accompanying the *former*, there are constant deluges of rain that keep all parts of the ground in a *plash*. In the *latter*, what is not inundated is dry. In Bengal, the bed of the inundation, when the waters have subsided, remains long in a miry state. In Egypt, such is the power of the sun, the aridity of the atmosphere, and the force of perflation, that the water has no sooner deserted the plains than the *latter* are turned into a solid crust, which soon splits into innumerable segments. “At that time, the soil, in hardness, resembles one continued rock, and is fissured every where with deep chinks. When we encamped in the delta, it was impossible to drive a tent pin into it, except by fixing it in one of the openings; and the detached clods, lying around,

were hard enough to be used as mallets." *Decur on Dysentery in Egypt.* p. 3—4.

From these circumstances, we are prepared to find that the extrication of *miasmata* in Egypt is on a very confined scale indeed, when compared with Bengal, and consequently that remittent and intermittent fevers are in proportion. Egypt, says Dr. Dewar, is less exposed than most other flat countries, in high latitudes, to bilious fevers of the intermittent and remittent kind, as it is free from those marshy miasmata which serve to generate and to cherish the contagion of these diseases. Intermittent fevers only prevail during the decrease of the Nile, *in houses surrounded with stagnant water.* At other seasons they are confined to places in the neighbourhood of extensive *rice grounds* such as the town of Damietta." p. 5.

It is true, indeed, that in particular situations, those natural causes which have happily secured Egypt from the deleterious influence of paludal effluvia, are counteracted by the perverseness and filthiness of the inhabitants. "This advantage, however, is counterbalanced by the dirty mode of living that generally prevails. The people seldom wash their clothes, and never shift them on going to bed. The offals of butchers' stalls are left in the open street, where they perpetually spread putrefaction and poison in the atmosphere. The sun would, in some degree, obviate this mischief, by drying them into hardness; but after they accumulate in the streets, they are thrown into the river or the sea, where they not only pollute the water, but, *lying just within water*

*mark* [there are no tides] are soaked with that quantity of moisture which is sufficient to keep the putrefactive fermentation in its most active state, and which allows them to disseminate their effluvia in the air.—  
*On Dysentery in Egypt*, p. 6.

Now, having satisfactorily accounted for the comparative immunity from miasmal fevers, which the Egyptians enjoy, beyond the Bengalese, let us turn to the parallel between Egypt and the Coromandel coast. But here the disparity of climate is not so great as in the other two instances, and the great prevailing diseases are proportionally analogous. I have traced the gradual deterioration of the biliary apparatus on the Coromandel coast to a high range of temperature, and its sudden derangements to atmospherical transitations. The very same thing happens in Egypt—from similarity of cause. “Elephantiasis and leprosy, says Dewar, are frequently diseases in Egypt. *Obstructions in the liver and dropsies are still more frequent.*” p. 6. How much our troops suffered from dysentery, which I have proved to be connected with liver disease, is well known to our army surgeons; and Baron Larrey was so struck with the prevalence of hepatitis in Egypt, that he has taken some pains to frame a theory for its explanation. He attributes the cause to a high range of temperature dissolving the fat of the mesentery, which becomes clogged in the liver. I do not quote his theory for its ingenuity, but to shew the extent of the disease. And now I trust the idea of Dr. Saunders and many others, that hepatitis in India is owing to a *local indigenous poison*

there, unlike any thing in any other country, will no longer be held.—This section has proved an identity of cause and a similarity of effect in India and Egypt, and consequently has solved a mystery that obstructed the path of medical science on an important point in pathological investigation.\*

Before leaving the banks of the Nile, let us glance at a few *indigenous* customs, from which the medical-philosopher may often glean useful hints. The natives, during the hot season, subsist chiefly on vegetables, pulse, and milk. They make frequent use of the bath, and avoid stimulating beverages. Those who live in tents take care to have their coverings constructed double, in order that the non-conducting stratum of air may defend them from the atmospheric heat. Again, as in the East, the various folds of the turban form a powerful non-conductor, when they are exposed to the direct rays of the sun, and preserve them from *Coups de Soleil*, while the sash, like the oriental *cummerband*, encircling the abdomen, preserves the important viscera within from the deleterious impressions of cold, during a sudden vicissitude of temperature, or an exposure to

\* I have already hinted that on the Coast of Africa where the heat is excessive, liver complaints are very prevalent. Of this I lately saw a striking example in the *Tigress* brig after returning from that station. No ship from India ever presented a more distressing picture of hepatitis and dysentery than this vessel did. Captain Beaver in his African memoranda gives the following thermometrical ranges of the six winter months, viz. from August to April. August 74 to 82—Sept. 77 to 85—Oct. 81 to 91—Nov. 84 to 96—Dec. 64 to 92—Jan. 63 to 93—Feb. 88 to 96—March 86 to 95—April 85 to 94°. Captain Beaver's work shews the prevalence of hepatic diseases on the coast.

the dews or night air; thus forming an article of utility as well as ornament.

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## LOIMOLOGIA;

OR,

*Practical researches on the Plague.*

SEC. XI.—Many philosophers have attempted, and with no mean success, to trace a chain of animated beings from man down to the polypus; and thence through the vegetable creation to the mineral in the bowels of the earth; so that—

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“ Whatever link we strike,  
‘ Tenth, or ten thousandth, breaks the chain alike.’”

It would not, perhaps, be very difficult to shew a similar catenation in the circle of diseases, by which we are surrounded. There are scarcely two diseases, however opposite in their phenomena when viewed in an insulated shape, that are not linked together by others partaking in the nature of both. At a first glance, the yellow fever and small pox would seem unmeasurably separated and widely distinct in every respect; yet the *plague* presents as fair a connecting link between them as the polypus does between the animal and vegetable kingdoms. Like *Causus*, the *Plague* is under the influence of the *atmosphere*, and limited within certain *thermometrical* ranges;—like small pox, it is propagated by contact, inoculation, or exhalation; and productive, in general, of local eruptions. Nevertheless it is as

distinguishable from either, as the polypus is from the Lord of the Creation on one side, or the Cedar of Lebanon on the other.

This destructive and mis-shapen enemy of the human race has ever been clothed in darkness and mystery, which add not a little to its real and imaginary terrors.—It may justly be characterized as a—

“ *Monstrum horrendum informe, ingens cui lumen ademptum !*”

Which unites all the bad qualities of the two diseases alluded to. It combines the rapid march and fatal issue of the western *causus*, with the dire contagious influence of the Eastern *Variola*.\*

Such an engine of destruction must, long ere this, have annihilated mankind, had not the omniscient Creator encircled it with various atmospheric barriers which are constantly arresting its progress, or suspending its powers. If “ the pen of writers has done little more than record the times and places when and where it proved most fatal—its devastations, and the variety of modes of treatment which had no certain success,” be it remembered that this very sentence, so disheartening to the medical philosopher, was, not long since, applied to *dysentery*, over which we have now a very strong control. All then may not be lost in respect to the plague. It may yet come under rule, and bow be-

\* One of the latest writers on the subject of plague, Dr. Calvert, asserts that it's poison radiated through the *atmosphere* on the inhabitants of Valletta, from a vessel in the centre of the quarantine harbour, and consequently that all precautions against *contact* were useless and delusive.—*Med. Chir. Trans.*, vol. vi.

neath the influence of medicine. At all events, it is our duty, as it ought to be our pride, never to succumb without a struggle. Let the Ottoman lie supine under the fetters of fatalism, while the Christian philosopher exerts those faculties bestowed on him by his Creator, in defending that Creator's noblest work from *premature decay*!

Although the venerable and laborious Russel, shall form the text or basis of this section; other and more recent writings will not be overlooked. But as *references* and formal *quotations* would swell the work too much; and as I have no particular theory or practice to support on the occasion, the reader will probably give me credit for fidelity and accuracy in the compilation, and absolve me from all suspicion of misrepresentation.

Previously, however, to entering on the symptomatology, &c. of the disease, it is necessary to state that I have derived much assistance from my esteemed and able friend Dr. Dickson of Clifton, in this section of my work. Dr. Dickson while stationed in the Levant, in the year 1803, had frequent opportunities of collecting interesting information relative to plague, and particularly from Padre Luigi de Trincon who, for a great number of years, had been superintendent of the plague hospital at Smyrna. The history of this venerable and benevolent man, as related by himself, and authenticated by others, is briefly this. Having been most severely attacked by the plague, about thirty-six years previously, and his life being despaired of, he made a vow, in the event of recovery to dedicate his services

to those who should be similarly afflicted. He recovered, and for some time adhered to his resolution; but the desire of revisiting Pavia, his native country, induced him to leave Smyrna. His vow, however, continually recurred to him; and he soon returned again to Smyrna, where he has ever since pursued his original resolution of attending on those afflicted with plague. He administers to his patients with his own hands;— consoles and cheers them;—sits, and even sleeps upon their beds; and in fine, has been principally indebted for his success to such attentions, as he knows little of medicine.

*Sub-sect I. Symptomatology. Fever.*—This, according to Russel, was, with very few exceptions, a constant attendant at one stage or other, but varying greatly in different subjects. Usually preceded by sense of weariness, shivering, and confusion rather than pain in the head. Cold stage shorter than in tertian; but the symptoms in hot stage more anomalous and alarming. In many cases, however, the pyrexia differed so little from that in other fevers, as to lead to no diagnosis, unless buboes were protruded, which left no doubt. Fever usually declined in the morning of the second day; but varied much in intensity of force, even in the 24 hours; the exacerbations being irregular as to violence and duration. Generally speaking, there were morning remissions and evening exacerbations. Still the march of the disease was rapid—the patient, on the second or third day, being reduced, in point of muscular strength and sensorial energy, to the condition of one in

the last stage of typhus. Yet to this desperate state would succeed a remission in which his senses and intellectual faculties were restored—the vital functions went on calmly, and all but weakness seemed to have vanished like a dream.

Remissions of this kind, when early in the disease, or unpreceded by a sweat, were often fallacious; but when on the third day, or later, and induced by a sweat, especially if the pulse kept up, and the head clear, they gave hopes of a favourable issue.\*

*Delirium.*—Not so high as in some other fevers†—seldom commenced before the second day, increasing in the exacerbation, lessening in the remission—sometimes going off for some hours in the day, but returning at night. Padre Luigi corroborates this statement, but has seen delirium and insensibility come on early.

*Coma.*—Very often alternated with the delirium.—It was always a dangerous symptom; but more so as it approached early, and failed to abate in the remissions. The patient is roused without difficulty—answers rational at first, but soon becomes impatient—denies hav-

\*The *initiatory* symptoms, according to Faulkner, the latest writer, were, at Malta, besides the foregoing, pain of the back opposite to the kidneys—drunken appearance of the countenance—inability to stand upright—aversion to being thought ill. “I have neither drunk wine nor spirits,” said general Menou, “and yet I feel as a drunken man.”

† Dr. Faulkner found it rise to *maniacal fury* in some instances, at Malta.

ing slept, and as soon as left, relapses again into slumber.\*

*Loss of speech, faltering, and tremor of the tongue,* were not uncommon symptoms. Impediment of speech, sometimes continued for months after recovery. Dr. Dickson, who had frequent opportunities of seeing plague in the Levant, observes that the tremor of the lips is often of a peculiar kind, a sort of biting motion, which is a dangerous symptom.

*Deafness* was seldom observed; though the sense of hearing was occasionally impaired. Dr. Dickson informs me that the patients sometimes became deaf.

*Muddy Eyes.*—This was a remarkable symptom. It sometimes was visible from the first day, but more commonly from the second or third, remaining till some favourable change took place. It is a strange compound of muddiness and lustre—is little affected by the remissions; but, in the exacerbations, the eyes acquire a redness that adds wildness to the look. The disappearance of this symptom is always favourable. It was almost invariably present in fatal cases. Sir B. Faulkner considers it without doubt one of the most leading and faithful monitors of the presence of plague. He was seldom wrong in his diagnosis, where any unusual whiteness of the tongue accompanied this appearance of the eye—“even though there was no intumescence or redness about the glands, nor any conges-

\* The comatose symptoms strongly resemble those of the Mariegalante fever, so well described by Dr. Dickson in a subsequent section.

sion of complaint." In the first instance which Dr. Dickson saw of the plague, and where he was unintentionally a visitor, he was particularly struck with the drunken appearance of the eye, and was at a loss what to think of the case, until the patient shewed him a bubo in his groin!

*White Tongue.*—The tongue was often natural; but when it changed, it generally became white, and remained moist. Sometimes it was parched, with a yellowish streak on the sides, and a reddish in the middle; but its condition rarely correspond with the febrile symptoms.

*Pulse*, is generally low, quick, and equal; in some bad bases, fluttering or intermittent, or low and nearly natural. In the more advanced stages of the disease, instead of rising in the exacerbations, the pulse was apt to quicken and become so small as scarcely to be felt. At Malta, in the last plague, the pulsations in ulterior periods, seemed to succeed each other in a continued stream, and defied calculation. But this function varied so much as to be *res fallacissima*.

*Respiration* was seldom affected, except in the exacerbations of advanced stages, when it became laborious. No pain felt on a full inspiration. Yet the patients frequently sigh, as if from oppression on the lungs.

*Anxiety*, that is, a sense of oppression about the *præcordia*, is a constant attendant on the plague; and its early appearance was unfavourable. "The sick," says Russel, "shewed how severely they suffered, by their

perpetually changing posture, in hopes of relief; but when asked where their pain lay, they either answered hastily, 'they could not tell,' or with a fixed, wild look, exclaimed—‘*Kulbi! Kulbi!*’ (my heart! my heart!) This anxiety increasing as the disease advanced, terminated at length in mortal inquietude.” p. 88.

*Pain at the Heart.*—Though this was often conjoined with, it was often distinct from the anxiety abovementioned. The patients often exclaimed, as in the other case, my heart! my heart! pointing to the *Scrobic. Cordis*; but then they would add *eujani Kulbi*, my heart pains me! or *naar fi Kulbi*; my heart is on fire! They could not bear the slightest pressure at the praecordia.

*Debility.*—The sudden prostration of muscular strength and nervous energy appertains, in a particular manner to the plague beyond that observed in any other disease. By its higher degree the more fatal forms of plague were distinguished. “In the more destructive forms of the plague, the vital principle seems to be suddenly, as it were, extinguished, or else enfeebled to a degree capable only for a short time to resist the violence of the disease. In the subordinate forms, the vital and animal functions, variously affected, are carried on in a defective, disorderly manner, and denote more or less danger accordingly.”—*Russel*, p. 89.

*Fainting*, in different degrees, was a very common symptom, and sometimes, though rarely, terminated in syncope. It was not so much aggravated by the perpendicular, nor relieved by the horizontal posture, as in other fevers.

*Convulsions* sometimes mark the access of the fever; and convulsive motions of the limbs frequently attend the course the disease, especially where there is a numerous eruption of carbuncles. *Subsultus tendinum* is not a very common symptom; but a continual trembling of the hands is generally observed. Luigi informed Dr. Dickson that *singultus* was not an uncommon symptom, and that sneezings was a favourable phenomenon.

*Urine*.—Nothing decisive can be learnt from this excretion. Luigi, however, frequently observed it of a very high colour, and depositing a lateritious sediment.—*Dickson*.

*Perspiration*.—Where the skin remains torpid and dry continually; or where short and precipitate sweats are attended with no favourable symptoms, danger is to be apprehended. On the other hand, the spontaneous supervention of an early perspiration is a flattering omen.

*Vomiting*.—This symptom, according to Russel, is “absent in a large proportion of the sick.” Where it began early, and continued obstinate, it was a fatal symptom. Bile was sometimes thrown up, accompanied with bitter taste in the mouth—“a yellowness in the eyes,” and “a blackish liquor sometimes came off the stomach in the last stage of the disease, in production of which, blood may, perhaps, have had some share.”—*Russel*. Faulkner makes no mention of *vomiting* in the late plague at Malta; but says that in the worst species the “stomach was extremely irritable.”

Russel admits that *nausea* was more common. Is not “stomach extremely irritable” equivalent to the mention of vomiting?

*Diarrhœa*.—Sometimes comes on the first day, but more usually supervenes in the advanced stages of the disease, and in either case, unless other things were favourable, may be set down as a *signum funestissimum*. Russel, and Faulkner. The latter observes that, in the plague at Malta, the alvine evacuations were commonly of a darker appearance than natural—sometimes of a greenish tinge mixed with scybala, particularly where voracity of appetite attended. Dr. Russel sometimes saw dark-coloured blood discharged by stool, unmixed with feces, and without griping. “*Costiveness was attended with no harm, and often with little inconvenience.*” Russel. Luigi confirms this remark.

*Hæmorrhages* were, in general, unfavourable symptoms.

*Thirst*, the never-failing attendant on febrile diseases, is by no means invariably present, even in the worst forms of the plague. “The like remark holds of want of appetite. Throughout the disease, this function is not only *not* impaired but augmented to a degree bordering on voracity.” Faulkner.

We shall not follow Dr. Russel through his six classes of the disease, but rather adopt the concise and less complicated divisions of Dr. Brooke Faulkner, in his recent description of the plague at Malta.

*Species I*.—That in which, at the first attack, the energy of the brain and nervous system is greatly im-

paired, indicated by coma, slow drawing or interrupted utterance. In this description of the disease, the tongue is white, but little loaded with sordes, and usually clean, more or less, towards the centre and extremity; the anxiety is great; cast of countenance pale; stomach extremely irritable, and the strength much impaired. Rigors and pain in the lower part of the back are among the early precursors of the other symptoms. This was observed to be the most fatal species of plague, and prevailed chiefly at the commencement of the late disasters. Those who were thus affected died sometimes in the course of a few hours, and with petechiæ.

*Species II.*—The next species I would describe, is that in which the state of the brain is the very reverse of what takes place in the former, the symptoms generally denoting a high degree of excitement: the pain of the head is intense; thirst frequently considerable, though sometimes wanting; countenance flushed; and utterance hurried. The attack is ushered in by the same rigors and pain of back as the foregoing. Epistaxis not unfrequently occurs in this class of the disorder. The glandular swellings come out very tardily, and after appearing, recede again, without any remission of the general symptoms. Carbuncles arise over different parts of the body or extremities, which are rapidly disposed to gangrenous inflammation. The delirium continues extremely high and uninterrupted, and the patient perishes in the course of two or three days. Sometimes he lingers so far as the seventh, yet rarely beyond this

period, without some signs of amendment. Of this second description, the examples have been numerous, and were nearly as fatal as the preceding. In the countenances of some, just previous to the accession of the more violent symptoms, there is an appearance of despair and horror which baffles all description, and can never be well mistaken by those who have seen it once.

*Species III.*—The third species which I would enumerate, is nearly a kin to the last, only the symptoms are much milder, and the brain comparatively little affected. The buboes and other tumours go on more readily and kindly to suppuration, and by a prompt and early employment of remedies, to assist the salutary operations of nature, the patient has a tolerable chance of surviving. Cases of this kind are often so mild, that persons have been known to walk about in seeming good health, and without any evident inconvenience from the buboes. Of this last species, the instances have, thank God, not been unfrequent, chiefly occurring towards the declension of the malady.

*Buboes and Carbuncles.*—The presence of these, separately or in conjunction, is diagnostic of true plague; and removes all doubt as to its nature; “but fatal has been the error of rashly, *from their absence*, pronouncing a distemper not to be the plague, which, in the sequel, has desolated regions, and which early precaution might probably have prevented from spreading.”  
*Russel.*

Although in some of the worst forms of the disease

[for instance in Russel's and Faulkner's *first* classes, where the patients frequently perished in twenty-four or thirty-six hours]—buboës and carbuncles are rare, yet, generally speaking, may be considered as constantly concomitant phenomena:—not so carbuncles, which were observed in about one third of the infected only. The inguinal axillary, parotid, maxillary, and cervical glands were the seats of buboës in the order they are set down; but the *first* was by far the most frequent. The inguinal pestilential bubo was, for the most part, situated lower in the thigh than that of the venereal. A burning, shooting pain is often felt in the part, anterior to the appearance of swelling; and when the tumour is once formed, there is always pain on pressure. In the incipient state of the bubo, a small, hard, round tumour is felt by the finger, more or less deeply seated, but generally moveable under the skin, which is yet colourless and non-protuberant. As the gland enlarges, it commonly takes an oblong form—becomes more immoveable,—and the integuments thickening protrude into a visible, circumscripted tumour, without external inflammation. The progress to maturity is more or less rapid; but not apparently influenced by strength of constitution or the contrary—hence the prognosis from the bubo is very uncertain.

In Dr. Russel's experience, the bubo seldom began to inflame *externally*, or shew symptoms of maturation till the fever had abated, and was manifestly on the decline. This happened at various periods, but rarely sooner than the 8th or 9th day, the inflammation then

advancing, the tumour by degrees softened, and opened of itself between the 15th and 22d day. The buboes that did not suppurate, dispersed gradually in one or two months.

In a very large proportion of Dr. Russel's patients the buboes made their appearance in the course of the first day. In the slightest cases, they were often the first symptom of infection.

*Carbuncles* were seldom observed by Dr. Russel before the month of May—they grew rife in the summer, and became gradually less common in autumn. The carbuncles that fell under the observation of Sir Brooke Faulkner in the late plague in Malta, were of that kind described by authors as the *wet carbuncle*, sloughing into very deep sores, and attended during the progress of inflammation, with an extremely painful, burning sensation. At first, they arose like a phlegmon, gradually acquiring a diffused and highly inflamed base, and having, not far from the apex, a concentric areola of a deep livid, and more internally of a cineritious colour, and a glossy appearance. These carbuncles were not confined to any particular part of the body or limbs, though most commonly they are situated upon some part of the extremities. Of the *dry carbuncles*, as they occurred in a few cases, the description corresponds with that of authors—being of a dark, gangrenous colour, without much pain, with little or no inflammation or elevation above the surface. These were always unfavourable symptoms.

*Petechiæ* in the plague at Malta were various in point

o size and colour—in some, of a dark, or dusky brown; in others livid—in some, so small as to be almost imperceptible—in others, as large as flea-bites. *Situation*, over the breast, arms, wrists—sometimes over the back, or lower extremities.

*Pathology.*—As scarce a ray of light beams upon this subject from *Post Mortem* researches,\* and probably never will, we are left to ground our pathological *opinions* on the phenomena of the disease, in its course to recovery or death. Upon a careful review of these, it is but too plain that *remedial measures* have had, as yet, scarce any control over plague. In the *graver* forms, medicine has been confessedly useless—in the *milder*, it was probably unnecessary—in the intermediate shades it may have had some influence. From this, and various other considerations, we may most safely conclude that plague, though influenced by the atmosphere, is propagated by a poison or contagion, strictly *sui generis*,—equally as much so indeed, as that of variola. Now, over any one of these *eruptive* contagions, excepting the syphilitic by *mercury*, and the variolous by inoculation, we have not one particle of power, *after* it is received into the system.† In what

\* Baron Larrey opened a few bodies dead of the plague in Egypt, and found the liver engorged and disorganized—the stomach and intestines gangrened—the heart soft and flabby. The brain was not examined. One of the assistants who helped to open the bodies caught the plague and died. The above phenomena are little different from those presented as the effects of other fatal, congestive fevers.

† I mean we have no power in arresting the progress of the *poison*; though we have much in mitigating the violence of reaction in the *system* itself.

way they produce their baneful influence on the living machine we are nearly, if not totally ignorant; but their effects are expressed by three great features or phenomena—depression and reaction, with a local determination. In the *first*, when excessive, and consequently dangerous, the powers of the system seem paralyzed or *stifled* and are not unfrequently annihilated;—In the *second*, when excessive and consequently dangerous, Nature appears, in her frantic efforts, to commit suicide on herself, by destroying some organ essential to life, or exhausting, beyond recruit the whole fabric;—In the *third*, or local eruption, some *sanative* process is effected, of which we *only* know that it *is* sanative—

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Sive illis omne per ignem  
Excoquitur vitium, atque exudat inutilis humor:—  
Seu piures calor ille vias, et cæsa relaxat  
Spiramenta. *Georgicorum lib. 1—l. 87.*

Now till we find out *specifics* for the other contagious poisons, as mercury proves in syphilis, the sum total of our knowledge leads but to this; that in the *first* instance, we are to endeavour to rouse or animate—in the *second*, to curb or restrain, and in the *third*, to leave alone, the *efforts of nature*.

This reasoning, indeed, will very nearly apply to the whole range of fevers; but unfortunately there is something more mysterious and intractable in those accompanied by *eruptions*, than in any of the others. This is particularly the case, in those forms of plague where nature appears to lie prostrate under the influence of the poison, without the power of resistance, much less

of reaction! Here we may apply the warm bath to the external surface of the body, and cordials or stimulants to the internal; but alas! the nervous and vascular systems are so entirely deranged, that nature, unable to avail herself of our assistance, sinks in the struggle, without the means of extricating herself from the mortal grasp of the enemy, or the power of accelerating her own destruction!

Plague, as an eruptive fever, differs so essential from endemic or miasmal fevers, not only in respect to its contagious origin, but its critical determinations, and also the mode of treatment, that one would hardly expect to find an amalgamation attempted in the present day. Yet such a doctrine has been recently maintained by two medical gentlemen, Dr. Robertson, and Mr. Torrie\*. The latter asserted that the plague was *not* contagious, and fell, of course, a victim to his own infatuation; the former endeavours to shew that the causes of plague and remittent fever are the same—that the symptoms, and *post mortem* appearances differ only in *degree*. He acknowledges, however, that he never saw the plague, and independently of this, his arguments are not of that weight that require a serious refutation.

*Therapeutics.*—The following is an abstract of Dr. Russel's *Methodus Medendi*. One early *bleeding*, which was very seldom repeated, excepting where circumstances unequivocally demanded it. Where vomiting was a concomitant symptom, it was encouraged by

\* London Medical Repository, Dec. 1817.

draughts of warm chamomile tea till the stomach was well cleared of bile or other colluvies. Where this was not sufficient, an emetic of ipecacuan was exhibited, after which an opiate. *Purgatives* were rarely given.

As soon as the stomach was settled, mild sudorifics were administered in small doses, as the acetate of ammonia and citrate of potash. If a diarrhoea prevailed, as it was never observed to prove critical, it was restrained by diascordium and opiates. Dilution—cool air in the beginning; but towards the height of the exacerbations, upon the first appearance of moisture on the skin, the sick were kept moderately covered up from the chin downwards. The diet was the lightest possible. For the coma and delirium, sinapisms and pediluvia were employed. For the oppression at the *præcordia*, mild cordials, acidulated drinks, and cool air were serviceable. After the height, and through the decline of the disease, bark in powder or tincture was exhibited. In the decline of the disease purging was employed by the European, but seldom by the native practitioners. Relapses, though exceedingly rare, do sometimes take place.

*Treatment of the Plague at Malta.*—Sir Brooke Faulkner's indications are, 1st. when inflammatory symptoms are violent at the beginning, to moderate them cautiously. 2nd. To restrain all inordinate efforts of nature; or support her when exhausted. 3rd. To counteract putrescence. 4th. To evacuate the morbid matter. These indications are proposed to be fulfilled by evacuants, tonics, antiseptics, blisters, sudorifics.

*Evacuants.* Purgatives are rarely ventured on by the Maltese, except in very strong, plethoric habits, when sulphate of magnesia is given. At other times, supertartrite of potash, manna, almond oil, &c. are most esteemed. *Bleeding*, even locally, was a precarious remedy, and no decisive benefit was obtained from its use. *Blisters* to the temples, nape of the neck, head, and shoulders were applied, in high delirium, or very low coma. *Sinapisms* to the soles of the feet. Mild emetics of ipecacuan at the very beginning.

The Maltese prescribe bark, colombo, gentian, and serpentaria, as soon as the state of the head allows. As a *sudorific*, the acetate of ammonia was preferred. Opium in some cases was useful; but required caution in the administration. Wine was given in the advanced stages, and often with benefit; but required great limitation. The same of cordials. The surgeon of the 3d Garrison Battalion, Mr. Stafford, has published several cases in the 12th vol. *Ed. Journal*, where mercurial frictions, externally, and calomel internally, proved very successful. The warm bath also proved useful. The cold affusion was tried in a few cases, and Sir B. Faulkner is inclined to augur favourably of it, when guided by the principles laid down by Currie.

Such is nearly the sum of the information Dr. F. has been enabled to collect upon this disheartening subject. It only verifies the words of the Poet—

Dum visum mortale malum tantoque latebat  
Causa nocens clavis, pugnatum est arte medendi,  
Exitium superabat opem, quæ victa jacebat.

*Prophylaxis.*—Since we have made so few advances in the *cure*, we must be the more vigilant in regard to *prevention*. Of all the means which have been recommended by ancients or moderns, none are equal to personal cleanliness—temperance—avoiding *contact*, or using immediate ablutions afterwards—shunning the breath, or vapour exhaling from the bodies, of the sick—ventilation—moderate exercise—attention to the great functions of digestion, perspiration, biliary secretion, &c.—Confidence. But a most important measure is the use of *oiled dresses*, the texture of which is so completely close as to prevent the passage of the most minute particles of any matter from without. By these means every attendant on the military pest hospitals in Malta escaped the contagion. As to oil frictions, they are precarious preventives, though highly recommended by some, particularly Baldwin and Luigi.

The oil dress over every part of the body, while a sponge moistened with vinegar is held to the face, seems the most certain prophylactic. Might not a mask be annexed to the oil dress, with a tube of leather fitted to the mouth, and leading out of a door or window, through which the medical attendant might breathe while visiting the infected in Pest Hospitals and Lazarettos?

Since writing the above, a mask has actually been constructed by a foreigner, composed of pieces of light fine sponge, which are to be soaked in different kinds of fluids, according to the nature of the deleterious gas or febrifacient miasm against which we are to guard. This, upon the whole, seems better than the mask and tube.

## Western Hemisphere.

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CAUSUS;

OR,

*Yellow Fever of the West Indies.*

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SEC. I.—The following concise, but animated description of the fatal Western Endemic is written by Dr. Mc. Arthur, late physician to the Royal Hospital, Deal; and as he had the superintendence of a public hospital nearly six years in the West Indies, with the most extensive field for observation, this document will be found highly interesting and valuable. It probably contains *more* useful and practical information on the subject of yellow fever than some modern octavos of the most ample dimensions.

The endemic fever, commonly called the yellow fever; certainly excites the first interest, both on account of the mortality which attends it, and the discrepancy among professional men respecting its nature and treatment. The inhabitants of the West India islands, are subject to various fevers of the typhoid, catarrhal, or remittent kind. These attack indiscriminately the native or the seasoned European, and are as mild as fevers

of a similar type in Europe. But the fatal fever, of which I am about to give some account, for the most part attacks persons from Europe, within the first *year and a half* after their arrival in the country, and more particularly seamen and soldiers.

It generally appears at a certain period of the year, earlier or later, milder or more aggravated, according to the state of the weather during that season. Solitary instances, however, occur at all seasons of the year, when favoured by predisposition, assisted by strong exciting causes. The natives are not entirely exempt, but to them it rarely proves fatal.

This fever is usually ushered in by the sensations which precede other fevers; such as lassitude, stiffness, and pain of the back, loins, and extremities; generally accompanied by some degree of coldness. These are soon succeeded by a severe pain of the head; a sense of fullness of the eye-balls; intolerance of light; skin dry, and imparting a burning heat to the hand; pulse full and quick; tongue covered with a whitish mucus, but often not materially altered from the state of health; bowels bound.

If the patient has been attacked in the night, he awakes with oppressive heat, head-ache, and the other symptoms of fever, the sensation of cold having passed unnoticed. At other times, after fatiguing exercise in the sun, and sometimes after a hearty meal, the violent head-ache, and other symptoms of the fever, are ushered in by an instant loss of muscular power, and immediate depression of nervous energy. The patient, as if he

were stunned by a blow, falls down, his eyes swimming in tears. In those cases, delirium is an early symptom. In a few hours, the pain of the loins increases, and, in aggravated cases, stretches forward towards the umbilicus; the countenance is flushed; the white of the eye as if finely injected by blood vessels, the albuginea appearing through the interstices of the network of vessels, of a peculiar blue, shining, cartilaginous whiteness.

During the first twelve hours, the patient is not particularly restless, enjoys some sleep, and, when covered by the bed-clothes, has partial perspirations on his face, neck, and breast.

About the end of the first twelve hours, there is a great exacerbation of the fever; he becomes restless; the heat and dryness of the skin increase; there is much pain of the eyes and frontal sinuses; the pain of the thighs and legs is augmented; thirst is increased, with a sensation of pressure about the region of the stomach. Nausea and vomiting occur towards the end of the first twenty-four hours. If the fever has not been arrested within thirty-six hours from its commencement, the patient is in imminent danger, and all the symptoms are aggravated; the pulse is strong and full, and pulsation of the carotids, appear distinct on each side of the neck. The skin continues hot and dry; the thirst is increased; there is much anxiety, the patient continually shifting his posture; the urine becomes high coloured; all his uneasiness is referred to his head and loins. A sensation of pain is felt about the umbilicus, when pressed upon; the white of the eye now appears

of a dirty concentrated yellow colour, and apparently thickened, so as to form a ring round the margin of the cornea. The blood vessels of the eye appear more enlarged and tortuous; knees drawn upwards to the abdomen; frequent vomiting, with much straining; mucus, and his common drink only, being ejected. Delirium comes on about the end of the second day. There is now a dryness, or slight sensation of soreness of the throat when swallowing; and about this time, an urgent sensation of hunger comes on, and a remarkable want of power in the lower extremities, resembling partial paralysis of the limbs. About this time, also, the pain of the loins is so severe, that the patient expresses himself as if his "back was broken."

The third day, or stage, begins by an apparent amelioration of all the bad symptoms, the vomiting and thirst excepted. The matter ejected has small, membranaceous looking floculi floating in it, resembling the crust washed from a port-wine bottle. The thirst is now urgent, and there is an incessant demand for cold water, which is almost immediately rejected by the stomach. The heat of the skin is reduced; the pulse sinks to, or below its natural standard; the patient, for an hour or two, expresses himself to be greatly relieved, and at this time, a person unacquainted with the nature of the disease would have hopes of his recovery. This state, however, is of short duration, and the delusion soon vanishes — The delirium increases; the matter ejected from the stomach becomes black as coffee-

grounds, and is somewhat viscid.\* Diarrhoea comes on; first green, then black, like the matter vomited. The patient often complains of being unable to pass his stools, from a want of power in the abdominal muscles. There is an acrid, burning sensation of the stomach, and soreness of the throat, extending along the whole course of the œsophagus, in attempting to swallow; eyes, as if suffused with blood; skin a dirty yellow; parts round the neck, and places pressed upon in bed, of a livid colour. Hemorrhage, more or less, takes place from the nose, mouth, and anus, and a deposition of blood from the urine. The delirium becomes violent; the body as if it were writhed with pain; the knees incessantly drawn to the belly. The patient seizes, with convulsive grasp, his cradle, or any thing within his reach, and prefers the hard floor to his bed. The pulse now sinks; respiration becomes laborious; the countenance collapsed—the lustre of the eye gone.—For some hours, he lies in a state of insensibility before death; at other times, expires after some convulsive exertion, or ineffectual effort to vomit. The tongue during the whole course of the fever, is but little altered; and if loaded in the early stages, is clean and florid before death.†

\* “The colour of the matter vomited is not essential to constitute the diagnosis of this form of fever; but the *increase* of the fluid beyond what has been taken in, more particularly if glairy, certainly is; and decidedly marks the gastric affection.”—*Fergusson on Yellow Fever.*

† This confirms the observation of Dr. Blane, that in yellow fever, “the tongue is somewhat white and foul, but I do not remember to have seen it black and dry.” 3d edit. page. 413.

Such is the regular succession of symptoms which characterize this fever, but of longer or shorter duration, according to the violence of the disease, or strength of the powers of life to resist it.

In weakly habits, the vascular action at the beginning is less marked; and in these cases, the fever is generally more protracted, and the patient expires unaffected by the laborious respiration, and convulsive motions, which attend the last struggles of life, in the more violent degrees of this endemic. Very often the patient retains his senses till within a few minutes of his death; and sometimes will predict with considerable precision, the hour of his dissolution.

In the early stages of the worst cases of this fever, there is much anxiety in the countenance of the patient, who expresses a despair of recovery. This fear does not appear to proceed from any *natural* timidity, but seems rather a symptom of the disease. In the last stage, there is as much *resignation* to his fate, as there was apprehension at the beginning. The fever of the Amelia in 1804, and of the Northumberland and Atlas in 1805, terminated fatally from the second to the fourth day. The fevers of 1807 and 1808, extended from the third day to the fifth. I have never noticed a remission during the whole course of the fever. Several cases of remittent fever under my care terminated in the endemic fever.

A certain number of those attacked by this fever, if prompt measures to subdue it had been employed, re-

covered from its first stage. They exhibited evident signs of amendment within the first twenty-four, or at farthest thirty-six hours, from its first attack. Also, a considerable proportion recovered from the second stage; that is to say, previously to black vomiting unequivocally appearing. But I have only known thirteen cases, in above five years, to have recovered from the last stage. Some of these were afterwards invalidated, in consequence of dyspeptic complaints, and generally disordered state of the stomach, and other abdominal viscera.

In these cases, the stomach gradually became retentive; the eyes and skin became of a more vivid yellow; they had refreshing sleeps, but continued extremely weak and languid for a long time. The oozing of blood from the fauces and gums also continued for some days; and the deposition of blood in the urine remained longest; this excretion being always the last to return to its natural healthy condition.

Pain of the back, early stretching round to the navel—soreness in the throat and œsophagus—heat and acrid sensation in the stomach—urgent thirst—hunger—want of power, resembling paralysis of the limbs—violent delirium—despondency—enlargement of the blood vessels; and red-yellow colour of the white of the eye, either singly or collectively, indicate extreme danger; and when the black vomit has appeared, scarcely a hope remains!

The following were the appearances after death [four cases excepted] in above an hundred bodies which I have inspected.

Omentum a little altered.—Peritoneal coat of the stomach occasionally marked, in a slight degree, by inflammation.—The stomach contained more or less of a viscid, black fluid, such as was ejected by vomiting.—Irregular spots, patches, and streaks of the internal surface of the stomach, in a state of inflammation, gangrene, or sphacelus.—Sometimes large portions of the villous coat destroyed, as if *corroded by some acrid matter*.—The small intestines and cœcum inflated with air, and often containing lumbrici, and a small quantity of dark coloured fœces, were inflamed, and in many places approaching to the state of gangrene.—No marks of inflammation in the colon, but it was singularly contracted.—Lower part of the rectum frequently excoriated—Concave surface of the liver inflamed.—Gall-bladder turgid with ropy bile; and, in some instances, its coats were one-fourth of an inch in thickness.—Other viscera of the abdomen little changed.—In the thorax, the posterior part of the superior lobules of the lungs, generally were very turgid with blood.—Internal surface of the œsophagus, throughout its whole extent inflamed.

In ten cases of a peculiarly aggravated degree of fever, where much delirium had been present, I opened the head. The blood vessels, in some instances, seemed more turgid with blood than usual. In two cases, there were about two ounces of serum effused into the

lateral ventricles; but in five cases the brain did not exhibit any marked appearance of disease.

The black matter found in the stomach had not the most distant resemblance to bile; but evidently was blood poured into the stomach from the relaxed vessels, or excoriated and gangrenous surfaces, altered by the vitiated secretion of the gastric fluids.

Europeans, within the first eighteen months after their arrival in the country, being almost exclusively obnoxious to the yellow fever, it is natural to suppose, that there is something in the European constitution, favourable to the morbid motions which constitute this fever; and that this peculiar habit consists in a disposition to take on inflammatory action. Persons seasoned to the climate, and even natives, by sudden alterations in their mode of life, sometimes acquire this predisposition. Young people born in the West Indies, and educated in England; and persons having resided some years in England; after they had passed the greatest part of their lives between the tropics, are liable to this fever on their return to the West Indies.

This disposition is excited into action by a variety of causes; the chief of which are—intemperance; excessive fatigue in the sun; perspiration checked, by being exposed to a current of air, or sleeping exposed to the dews; costiveness, &c. &c. In fact, whatever becomes an exciting cause of fever in any country, is equally so in this; but unfortunately it is not the same fever that is induced.

It has been observed, and very frequently urged by the *bon vivant*, as an excuse for his mode of life, that men who live in the most temperate manner, are as liable to fever, if not more so, than those who follow the opposite extreme.—There is an appearance of truth in this remark. Often, very often, the temperate and sober are seized with this fever, under circumstances where the drunkard escapes.

A stranger, on his arrival in the country, unless possessed of more than ordinary resolution, is assailed by so many temptations, that he has not the power to follow the plan he may have laid down for his own regulation. He commits an *occasional* excess, and next morning awakes in a high fever; while the man accustomed to his "*mosquito dose*," probably feels no uneasiness, or if he has a slight head-ache from his last night's debauch, flies for relief to his hot punch or sangaree.—The more temperate and regular a man has lived, any deviation will become, in a proportionate degree, a stronger exciting cause of fever.\* But if the drunkard and the sober man should be attacked with fever, the former has not an equal chance of recovery with the latter.

Contagion, as a source of this fever, is entirely rejected by those professional men who have the greatest opportunity of information, now resident in the West Indies. No case occurred, where the fever could be

\* This is no argument against temperance; it only proves that its breach is more dangerous to the regular liver than to the debauchee.

traced to a contagious source. In the very first stage of this fever, it would probably be difficult to distinguish it from the other continued fevers of the country. Its violence is one criterion, by which we might form a judgment. We must also look to the particular circumstances of the person attacked.—If he has been but a short time from Europe;—if he has been taken ill after a debauch—fatigue—or unusual exposure to the sun, or to a partial current of air, or after sleeping in the night air, there is much reason to apprehend yellow fever; more particularly if the eyes be inflamed, and the pain of the loins stretches forward to the navel; with soreness of the throat—heat, and acrid sensation in the stomach; a feeling of pressure there, and urgent desire for cold drink. These, and the other symptoms already described, will indicate the nature and the danger of the disease.

Bleeding largely, in the early stage of the fever, has been found of the most eminent service. When employed after the first stage of the fever had passed by, it did injury, and certainly hurried on dissolution. The following plan is that which has been pursued at this hospital, for several years; it is that which has been practised by many of the naval surgeons on this station, and has been attended (would I could say uniformly the happiest effect!) with at least superior success to that of any other.

From twelve to twenty-four ounces of blood and upwards, are drawn from the arm, as soon after the ac-

cession of the fever as possible. The blood should be drawn until derangement of the vascular action has taken place, by the quantity of blood extracted; indicated by approaching syncope, nausea and vomiting. Should fainting come on, from mental emotion, such as the dread of the lancet, sight of the blood, &c. the bleeding is to be continued after the patient has revived, until a quantity proportioned to the strength is drawn off. Six grains of calomel, and double that of cathartic extract, are to be immediately given; and if this medicine does not operate in three hours, it is to be repeated. At the end of six hours, if the purgative has not yet had effect, it is to be assisted by an enema; and either an ounce and a half of sulphur magnesiæ, vel sodæ, or half a drachm of jalap, with an equal quantity of crenor tartar, are to be given.

In eight hours after the patient has been bled, six or eight full, copious evacuations should be procured.

During this time, if the skin be hot and dry, the cold affusion is to be employed every two hours. Partial perspiration, in the early stage of the fever, should not deter from its use. *The greater the force with which the water is applied, the more benefit is to be derived from it.* When there is much pain of the head, the hair is to be shaved off. Thus the treatment, during the first twenty-four or thirty-six hours, consists in one full, large bleeding—purgatives, so as to procure several copious alvine evacuations—the cold affusion\*—

\* The vapour bath, now coming into use at the naval hospitals abroad, bids fair to prove a powerful auxiliary in

shaving the head; and the liberal use of barley-water, or any other weak drink.

Under this plan, fifty patients out of one hundred, attacked by the genuine endemic fever, will shew evident signs of amendment within the above-mentioned period. A general perspiration, not profuse, will break out; the heat of the skin will be reduced; head-ache, and pain of the thighs and legs will be abated; the red vessels in the white of the eye will disappear; the thirst will be lessened; and, in short, all the feelings of the patient will become more agreeable. From this state they recover with extraordinary rapidity. In one week they are restored to perfect health.

If this favourable change does not take place within the period alluded to, there is much danger. The patient becomes restless; the sensation of pain is more acute; delirium, vomiting, and other bad symptoms succeed. In this stage, the bowels are to be kept loose—two or three stools are to be procured every twenty-four hours, by calomel, given in four grain doses, three or four times a-day, as the state of the bowels may indicate. The cold affusion is to be continued, lessening the force with which the water is applied, as the vascular action and heat diminish. If delirium and vomiting are present, blisters are to be applied to the head and nape of the neck. Before the heat is reduced, and the vascular action brought

soliciting the blood to the surface, and thus relieving the internal organs from the effects of CONGESTION.

down to its natural standard, stimulants are employed; such as wine, at first in small quantities, gradually increasing it; capsicum, in the form of pills. If the patient has been much addicted to spirits, toddy in lieu of wine is to be allowed; but the stimulant from which I have observed the greatest benefit, is the carbonate of ammonia, in doses of six or eight grains every two hours, with small doses of nitrous æther, diluted with water. When vomiting is urgent, the patients are to be restrained from drinking much; and when the stomach is empty, more benefit is derived from two table spoons full of arrow-root every half-hour, than from any medicine I have known. Vitriolic æther, and even ardent spirits, to restrain vomiting, as the heat and vascular motion subside, have been taken with partial relief.

This state may continue for two days, or even longer, before there is any remission. The first favourable symptom is usually a refreshing sleep, and the absence of delirium. A warm and moderate perspiration covers the surface, and if the skin and eyes have been yellow, the colour becomes more bright.

Convalescence from this stage of fever is much more slow than from the first. Much attention to the state of the bowels, and the liberal use of the decoction of bark, with vitriolic acid, if there be much oozing of blood from the gums and fauces, are necessary. From that stage in which the black vomit is the prominent symptom, few—very few recover. Dark-coloured fluids, however, have been often taken for black vomit, where

the latter did not exist, and thus nurses, and even medical men, have been deceived. All the cases that recovered at this hospital, were certainly unexpected. This dreadful symptom had continued in all of them above twelve hours; oozings of blood from various parts, stools black as ink, &c. were present. The first sign of amendment was the stomach becoming retentive, and the enjoyment of a few hours sleep. The yellow colour of the eyes and skin became daily brighter, till at last the patient had the most perfect jaundiced look; the colour of the stools keeping pace with that of the eyes and skin. The stimulating plan of treatment, after full and copious evacuations in the earliest stage of the disease, was gradually begun with these patients long before the vascular action had been reduced to its natural standard. Wine frequently, and in small quantities—the carbonate of ammonia—capsicum, with arrow-root, were assiduously administered; and whenever the appetite of the patient craved for brisk porter, spruce beer, &c. they were never denied; but these and other drinks were given in small quantities at a time; as larger caused instant vomiting.

Relapses from this fever frequently terminate fatally. Want of appetite, and sensation of fulness at the stomach, usually precede the common train of symptoms. In these cases, I found an emetic give instantaneous relief. The patient generally vomits a large quantity of æruginous-coloured matter, and the evacuation is attended by immediate ease: two or three drachms of

the tartarized antimonial wine (Edin. Phar.) are generally sufficient for the purpose. In the *usual* practice of the hospital, emetics are omitted, because they often delayed the exhibition of brisk purgatives, which are required to move the bowels in this fever. But there is one form of the endemic commencing with diarrhœa, and sometimes dysenteric symptoms, in which emetics are employed with advantage. When the fever, however, commences in this way, it is less dangerous, though more protracted, than where costiveness and torpidity of the bowels attend.\*

In this, as in other diseases, anomalous symptoms will occasionally occur, requiring slight modifications of treatment; but these can only be learnt at the bedside. On this account, I forbear to enumerate laudanum, æther, ginger tea, effervescent draughts, champagne, &c. which in high practice are sometimes prescribed. The practice of applying powdered capsicum to the raw surfaces of blistered parts, by way of counter-irritation, had nearly become fashionable from its novelty; but this barbarous practice I believe, is nearly laid aside. I may mention, though out of place, that the actual degree of heat, as indicated by the thermometer, is not proportionate to the intensity communicated to the hand. The heat generally varied between

\* "The most favourable cases of the yellow fever, are those in which a bilious diarrhœa comes on; while the most fatal are those in which the bowels are so torpid as to be insensible to any stimulus, either from their own contents or from medicine."—*Blane, 3d ed. p. 450.*

99° and 102°, very seldom exceeding 103°; yet the same imparted a burning caustic sensation to the hand at these times.—*D. M'Arthur.*

This ingenious and experienced physician does not suppose a residence in other hot climates to be any effectual security against the endemic of the West Indies. Several regiments which had been a considerable time at Gibraltar, and were afterwards sent to the West Indies, in 1795, were cut off, almost to a man, by the yellow fever; and ships from the Coast of Africa (for instance, the Arab in 1807) were depopulated with as much rapidity as if they had come from England. This proves what I have before remarked in the Batavian endemic, that nothing but habituation to the *local* miasm, can secure us from the *local* fever, however, theorists may generalise or identify the remote causes.\* He concludes with this observation: “It is probable that as many lives have been lost by the *temerity* of men who have resided in *other* hot climates, as by the *timidity* of those direct from England.”—This sentiment from *experience*, will outweigh a volume of eloquence from theory.

\* Perhaps this passage in the 1st Ed. requires some modification. Residence in other tropical, or even tropicoid climates, probably confers a *comparative* degree of seasoning against the less powerful causes of fever in the West Indies.

*Observations on the Locale of Yellow Fever, by Dr. Fergusson, Inspector of Army Hospitals, &c.*

The principal West India towns and garrisons for the troops are situated on the leeward shores of the country, at the bottom of the deepest bays that can be found, as a protection to their trade against the winds from the sea. The soil must consequently be alluvial, and is often marshy. Nine tenths of the towns are inclosed by high hills rising immediately behind them, which exclude the sea breeze, that, in its natural course, ought to reach them from the windward side of the country. As their elevation is generally little above the level of the sea, we have abundant reason to conclude, that if the highest degrees of reflected tropical heat, defective perflation, and the miasmata that reside in marshy soils, or may be formed in the drier alluvial ones by heavy rains, can produce aggravated remittent fever, it must happen under such circumstances especially where police and cleanliness are entirely disregarded.

The settlements of the planter, in like manner are formed, not on the elevated mountain ridge from which the periodical rains have washed away the soil, but in the alluvial grounds beneath, where his labour can with more certainty be turned to profit. Nor is it to be wondered at, under such circumstances, that a body of raw troops or young civilians, come to settle in town or country, should be swept away by tropical fevers. The won-

der is why it does not happen with more unerring certainty; for there are seasons, and even courses of seasons under apparently similar circumstances of heat and moisture, when even the declared swamp is comparatively innoxious to the newly-arrived European, and still more so to the seasoned inhabitant. This begets in the young adventurer or hardened votary of wealth, a fatal delusion of confidence, which, though so often exposed by the melancholy recurrence of fatal fevers, is never cured.

The pestiferous quality of miasmata does not appear to depend *necessarily* either upon aqueous or vegetable putrefaction, however frequently it may be found combined with both. Every one knows that the miasmata are not generated from the body of the lake or pool, but from its drying, or half-dried margins. The swamp is no more than this margin rolled up under another shape. Water, without being absorbed by the subjacent soil, gives out no febrifacient effluvia. One of the healthiest quarters in the West Indies, is that of the field officers on Berkshire hill, the bed room of which is placed over a deep stone reservoir of water. But this said febrifacient miasma is very certainly generated from the *paucity* of water where it has previously abounded, provided that paucity be short of actual dryness. To the production of this a high atmospherical temperature is indispensable;—and in proportion to the intensity of temperature is the intensity of power in the miasma produced, varying its effects on the human frame, from the ordinary ague of Europe, and the West India

Mountain fever, to the highest degree of remittent and yellow fever, which is never found remote from the level of the sea. It is comparatively innoxious to those who have had the good fortune to become habituated to its influence; and attacks with singular peculiarity of selection the robust, the young, and the healthy, in their first approach to its abode. If these be granted, I think we may be able to explain from the various compositions of soil, its elevation, aspect, and texture, as affording capacity to retain moisture, why every dry one can be brought, during an uncommonly wet season, through the influence of tropical heat, into the state of a marsh that gives out noxious vapours; while a marshy one approaching to dryness through previous drought may be made perfectly healthy from the same abundant rains. Thus Barbadoes, which from its cleared ealeareous soil, is far more salubrious, in general, than Trinidad, has been lately afflicted severely with the worst forms of yellow fever; while the latter Island remained perfectly healthy. In both places it has rained abundantly—particularly in Trinidad, whose extensive marshes have been overflowed; while the alluvial soil on the shelves of table land at Barbadoes has been converted into a temporary swamp. So at St. Lucia, when the garrison on the lofty position of *Morne Fortune* is healthy during the fine dry weather, the inhabitants of the town of Castrus at the base of the same hill immediately below, and within half cannon shot, are visited by the worst fevers, and *vice versa*:—The dry weather gives activity to the miasmata which the rains dilute, re-

fresh, or condense, at the same time that they are forming pools, and temporary swamps on the shoulders of the hill, immediately beneath the Barracks, on the summit of Morne Fortune.

So a deep ravine, impervious to the rays of the sun and free current of air, that has been a water course, may still, after its surface appears dried by the summer heat, retain sufficient underground moisture to give out the most dangerous miasmata—the more dangerous because the more concentrated for want of perspiration;—and so, in fine, salubrious and insalubrious soils may, under such circumstances, change places, in regard to health; and localities in the neighbourhood of each, under the same modifications of climate, be very differently affected.

It has been inferred that yellow fever belongs to a different family from that of intermittent, because it seldom occurs at the same time with, or breaks off, in convalescence, into ague. Ague indeed is not a common production in the hot, low-land on or near the level of the sea—where alone the yellow fever is found. It is very rare, for instance, to hear of an ague originating in the leeward sea-port town of Basseterre, Guadalupe, either amongst the troops or inhabitants; but in the barracks on the cool marshy hills above the town, at an elevation of less than a thousand feet, it is a very common disease, among officers and soldiers, while their comrades in the town are devoured by concentrated remittents. The same may be said of nearly the whole of

the West India towns. They are all so marshy that, in colder latitudes, they could not possibly escape agues, which however, very seldom originate, and are nearly unknown amongst them. The inhabitants of Barbadoes boast that they are exempt from agues, though the island has several marshes. Thus the reason is plain:—There are very few ridges there of sufficient elevation to belong to the region of intermittents, even supposing their sides to be marshy, which they never are. The swamps are all in the lowest levels of the land; and when their morbid miasmata act upon the human body, they produce the greater or less concentrated forms of remittent fever, according as their powers are regulated by the temperature and climate of the season, or as the subject is presented under more or less favourable circumstances of seasoning, excitement, &c.

I am far from presuming to deny that there are fevers from pure excitement; “*for soldiers and others have been attacked and died of yellow fever before they landed in the West Indies, or could be exposed to the influence of land miasmata in any shape.*” From this it would appear that a calenture [the synocha of Cullen], the pure offspring of heat, as pneumonia is of cold, runs a course similar to the yellow fever.

“To the argument that the highest degree of concentrated remittent or yellow fever, should neither remit nor break off into ague, it seems sufficient to reply, that for any disease to observe regular laws, it is necessary that the vital organs principally affected should continue

in a certain degree of integrity; that their functions should only be disturbed and perverted to a given point; that they should still be discernible as funtions, and not be utterly overwhelmed and extinguished by the violent cerebral action and speedy gangrene of the sto-mae that take place in aggravated yellow fever. As the ulcer of a speeific poison that would run a regulated course according to aeknowledged laws, if it be driven to a high inflammation or sphaeelus, no longer belongs to the original stock, and is emancipated from those laws; so the violent actions of the above fever impair and de-stroy the animal funtions by which its crisis and remissions are regulated, or speedily engender a new disease; as new as the conversion of an ordinary venereal chanere into a phagedenic slough, through the applica-tion of a potential cautery."

I may refer to the seetion on *Bilious Fever*, in the first edition of my work, for a similarity of doctrine.

By *Malaria*, Dr. F. means to express something that is more decidedly than miasmata the product of under-ground moisture, which can only be sublimated, so as to produce its specific effects, by long-continued solar heat, a more subtle miasm, in fact, of which the surface gives no warning, but of which the existence is proved from its effects on habitations that are placed in the drought of the dry ditches of forts, no matter how rocky or dry, if they are deep, and also of deep ravines. At Fort Matilda, in Basseterre, Guadalupe, a well-raised arti-llery store-house and guard-room, placeed in Bouehure,

at the confluence of two of the ditches, was found to be utterly uninhabitable. The same malign influence affected the houses that were placed opposite the deep ravines of rivers, no matter how pure and pebly the channel, as also all the dwellings situated on the leeward base of the mountains.\*

It would also appear that these effluvia, during certain states of stagnation of atmosphere, as during the sultry calms of the hurricane months in the West Indies, *accumulate* in the dirty, ill-ventilated streets of West India towns, to the danger of all who are unseasoned to their influence. Here *strangers* will have the highest degree of ardent fever.

It is probable, too, that the healthiness of seasons in unhealthy climates, depends less on the *amount* of heat and moisture, than on the *ventilation* of the climates by powerful, regular trade winds, like the trade winds between the tropics; for whenever these have been withheld for a time, the accumulated morbific emanations from underground moisture will act upon the human body, like the accumulated typhoid principles in crowded hospitals, when undiluted with a due proportion of atmospheric air.†

\* See the Section on Sicily.

† See Dr. Fergusson's paper in the 8th vol. *Med. Chir. Transactions*, from which the above has been abstracted and condensed.

*On the Fever of Mariegalante, in the West Indies, communicated to the Author by J. H. DICKSON, M. D. F. L. S. &c. of Clifton. .*

SEC. II.—The history of the fevers at Mariegalante, from July to December, 1808, is not only well calculated to shew the destructive powers of concentrated marsh miasmata, in tropical climates, at certain seasons, but also the modifications of fever which arise according to intensity of cause, locality, atmospherical vicissitudes, epidemic influence, or degree of constitutional predisposition. The difference of effect, however, as marked by difference of type, or anomalous appearances, is here particularly worthy of attention, because the men were limited to a small space, insulated, and exposed to the same causes which were strictly local and indigenous, but affected by differences of temperament or habits, degree of habituation or exposure, and other relative circumstances. I can, however, only propose here to give a hasty and imperfect sketch of the sickly period in question, owing to deficiencies in the reports during the illness of the successive medical officers, and the space and time it would occupy minutely to analyse those in my possession. For some months after the capture of the island, the Marines composing the garrisons enjoyed a very fair degree of health; but from the beginning of July (the usual commencement of the sickly season there) after heavy rains succeeded by intense heat, fever became daily more frequent in

occurrence, and aggravated in character. Upon my arrival on the 29th of the same month, I found the disease had made such progress as caused me to entertain the most painful apprehensions for the fate of the garrison. It originally consisted of only 350 men, and there were then 150 on the medical list, 40 of whom were affected with fever, 15 with dysentery, and 75 with ulcers, many of which, owing to the sickness of the surgeon, and the accumulation of cases, had attained a considerable degree of malignancy. Of the first disease, many had the yellow or endemic fever of the West Indies, in its most aggravated form, with black vomit; in others, it was of a more protracted character, and with symptoms more resembling those of typhus; while the remainder had remittent or intermittent fevers. On my first view of the sick, and of the low swampy situation of the town of GRAND BOURG, together with the season of the year, I was impressed with the most unfavourable anticipations, and represented to the Commander in Chief, that although I had expected to find much sickness at Mariegalante, I had not been prepared for the conclusion I was then obliged to form—viz. the total reduction of the strength of the garrison in the course of the hurricane months, unless the sickness could be arrested. That my prognostic was but too accurate will appear in the sequel. The closest inspection, on the following day, tended but to confirm and extend this conclusion, and my report expressed the grief with which I offered my opinion that

the garrison would be shortly incapacitated for any duty; that the only chance of averting this depended on the adoption of measures of the greatest promptitude and energy; and that the presence of the Commander in Chief on shore would greatly facilitate the carrying them into effect; a suggestion with which Sir Alexander Cochrane, with that heart-willingness which characterised him in every instance, where the health of the men was concerned, immediately complied.

The first object was to remove, as far as it was possible, both the sick and the well from their unhealthy habitations; rendered still more noxious by the accumulation of disease; and, where this could not be effected, to cleanse and purify the apartments, and to arrange, and separate the sick, &c. The next considerations were the clearing away of whatever was filthy and offensive around them; the employment of Negroes for this, and various other fatiguing and dangerous duties; the avoiding of exposure to the sun and rain; a more regular supply of fresh diet, and of wine or spruce beer to the troops, instead of rum; and lastly, the adoption of every measure which could prevent the facility of intemperance, and excesses with noxious new spirit. A more elevated situation was procured for the convalescents, on the hill; and a large house on the sea shore to the eastward, and consequently generally to the windward of the swampy grounds, was selected for an hospital; but the latter, owing to reports of its insalubrity and other difficulties, was never occupied; though

I was decidedly of opinion that the removal of the men, any where, was preferable to their remaining in their former situation, which had been replete with disease and death. After making those arrangements, Mr. Mortimer, surgeon of the flag-ship, who had handsomely volunteered his services, was left in charge of the sick; and according to his official report, published in the Nineteenth Number of the Medico Chirurgical Journal, for the first two or three days such was the amendment produced by the measures concerted, that a considerable diminution of disease was calculated upon. But alas! the remission was but temporary: the men could not be removed beyond the reach of noxious exhalations, emanating in all directions from the low swampy ground covered with rank vegetation; the concentration of the marsh miasma; and the predisposition favoured by apprehension and irregularities, increased daily, and the fever proceeded with augmented power and rapidity, until it had swept off half the garrison. The aspect of the country, Mr. Mortimer observes, "seems particularly favourable to such exhalations. On viewing it, you almost constantly find hills of easy ascent, intersected by lesser declivities, and these on both sides encompassed by swamps; so that whether in the interior, or the town, sickness nearly equally obtains." The enemy taking advantage of the disabled state of the garrison, attacked the island on the 23d August, and although in a short time it was re-captured, and reinforced by fresh detachments, the sickness was necessa-

rily much increased by the fatigue, exposure and irregularities incidental to warfare. Many of the old as well as the new troops were seized with the fatal fever: indeed the worst cases were second attacks, brought on by exposure and excesses, and by the end of September, this ill-fated little garrison had lost by disease 234 men. As a most faithful description of the yellow fever by Dr. Mc. Arthur appears elsewhere, and as Mr. Mortimer's report of the endemic in question has been inserted in the Medico-Chirurgical Journal, as above noticed, I do not propose giving any further account of it here.

The only treatment which appears to have had any effect was that of bloodletting and purgatives, if resorted to sufficiently early; but even these measures were inefficacious, unless employed at the very commencement; and after what has been said, it is hardly necessary to add that the power and rapidity of the disease were too often such as to set medical controul at defiance: indeed in its highest grade, there is so little chance and time for the interposition of our art, that it may almost be considered irremediable: and, in some instances, men who complained of headache and giddiness in the afternoon, were dead by the next morning.

Mr. Mortimer was taken ill before he had finished his report, and was received on board the flag-ship in a state of extreme danger, from which he with difficulty recovered. He was succeeded by Mr. Waller, (who like his predecessors suffered much from the unhealthi-

ness of the situation,) and from whose communication chiefly I have extracted the remaining account of disease at Mariegalante. The yellow fever declined towards, and indeed altogether ceased by the end of September, when the season became rainy; and it was succeeded by cases of a protracted description, extending to the period of twenty days, or longer; and though characterized by some peculiar and anomalous appearances, with symptoms much resembling those of typhus. During the months of October and November, the weather was wet and squally; and there was comparatively but little fever, with the exception of quotidian intermittents, which were by no means severe, and yielded readily to the moderate use of bark. In December, the tertian became the prevalent type, but early in this month intermittent paroxysms occurred of an alarming character, and of such intensity that, in some cases, after one or more attacks the patient was carried off by coma and convulsions. In this way seven men died within twenty-four hours; and some even in a much shorter period, so as at first to induce a suspicion of poison. The symptoms may in some have been partly attributable to their having taken a large quantity of rum, with the view of preventing the ague; but they also occurred in others who had not tried this pernicious experiment. In one man who died in about two hours, a green sediment, supposed at first to be some poisonous vegetable, was found in the stomach. In others who were opened, however, no such matter was discovered; but only a bilious looking fluid, similar to what was ejected by

many, but not by all before death. In almost every dissection a large quantity of this fluid was found in the stomach, dying every thing it touched of a very deep yellow colour—very turbid, saponaceous, adhering to the sides of the vessel, with an odour of ammonia so strong and pungent, as to excite the olfactory nerves, and appearing to be particularly acrid; but not at all resembling the matter with the green sediment above-mentioned, nor the black vomit of yellow fever, nor even the yellow fluid which is first thrown up in that disease. The action of this fluid upon the nerves of the stomach seemed to be the cause of the comatose symptoms which came on, soon after the invasion of the paroxysm, or at the commencement of the hot stage; as, whenever an emetic was previously given, a considerable quantity of it was brought up; but the remedy seemed also to increase the secretion of it; for as much would be ejected in the course of the succeeding day as had been discharged by the emetic. In the greater number, the comatose symptoms did not appear till after the patient had sustained two or three paroxysms: many, however, died in the first paroxysm, when the coma did appear, but more in the second paroxysm. To this account of the severity of the disease, I can well give credit, from the cases which fell under my own observation, while at Mariegalante. In one instance I recollect to have seen a man in whom, not only, as mentioned by Senac, the hot and sweating stages occurred together, but all the three stages seemed to be

concentrated at once; for while his teeth were chattering and his body shivering from the sensation of extreme cold, his skin felt excessively hot to the touch, and large drops of perspiration were standing on his face and breast.\* When the disease was of the Tertian type, Mr. Waller observes that the symptoms lasted about thirty-six hours, or until about two o'clock in the morning of the day after the attack; when of the quotidian type, the duration was about eighteen hours, and somewhat milder, but the intermissions being only six hours were less complete than in the Tertian paroxysms. In the latter part of the paroxysm the pulse and skin sunk remarkably low, as in the fever about to be described; but they rose again, during the apyrexia, nearly to the natural standard, and the patient then complained chiefly of debility. In every instance where the patient survived the second shock, he recovered ultimately but seldom without having had six or seven paroxysms. In this disease, denominated by Mr. Waller, "*the comatose intermittent*," his practice was to give an emetic, an hour before the accession of the attack, which appeared of considerable service in mitigating it:—a blister was applied to the head, and sometimes between the shoulders, and the bowels were kept

\* Besides Senac; Cleghorn, Stork, Pringle, Frank, Burserius, and various other authors adduce instances where the order of the paroxysm was deranged, or some of the stages wanting, and of various anomalous appearances in intermittents.

very open with calomel. His principal reliance however, was on mercurial frictions repeated every hour; and by this remedy he thinks many lives were saved, though in one instance only was ptyalism the consequence of it. When the paroxysms ceased, it was discontinued; and the bark was substituted. The patients continued long in a state of convalescence; and frequently shewed symptoms of diseased spleen. Towards the end of November the northerly winds set in; vast quantities of rain fell during the night; and soon afterwards, that is early in December, fever became prevalent. This fever occurred at the same period, and in some respects bore a strong similitude to the aggravated intermittent above described; but it was of a different type, and appeared in duration and symptoms to be intermediate between yellow fever and typhus. As this fever was characterized by the supervention of extraordinary symptoms, viz. coma, reduction of temperature, and periodical vomiting, I shall give a more particular account of it, as it is described, though more summarily than in the minute, and I have every reason to suppose, faithful report of Mr. Waller.

*Description of the Fever.*—The patient complains of being taken ill in the evening; but, upon more minute enquiry, it is generally found that a slight head-ache was felt in the morning, with a sense of lassitude and pain in the limbs; which symptoms were relieved at dinner, but returned, in an increased degree, about sunset. Slight rigors then occur, and are often felt for

some time after the heat has accumulated on the surface of the body; they generally continue about an hour, when the temperature becomes steady; though at a lower point than is usual in the commencement of yellow fever, and considerable thirst and anxiety succeeded, while the face and general surface become flushed; and the blood vessels of the eye turgid. The pulse is now full, firm, and frequent; but the skin, though hot, is seldom without some degree of moisture and softness. Perspiration usually comes on early, and continues free and general, during the remainder of the paroxysm, which ceases about two or three hours before daylight. The patient then falls asleep for some hours, and awakes refreshed, and with a considerable remission of all the febrile symptoms; the pulse is now less full; but still frequent, and often irregular; and the tongue, which was merely white before, is found thickly coated with mucus, whitish round the edges, but very foul and brown in the middle. The patient complains now only of debility, and a dull heavy sensation of the head increased on motion, and shews a propensity to sleep. The apyrexia continues till about noon, when the same febrile symptoms recur, but increased in violence and duration. The remission next morning is less complete, and the exacerbation comes on earlier. In general there is no third remission; the fever becomes continued and is early accompanied by great irritability of stomach, beginning with a vomiting of bilious matter, and afterwards of every thing that is taken, with very distressing retching,

uneasiness, and pain when it is empty. The dull heavy pain in the forehead, with vertigo on motion, is always complained of, which, with the pains of the limbs, generally continues through the disease. The bowels are for the most part relaxed, sometimes very loose, and the stools watery. The patient most frequently continues in this state four or five days, when a new train of symptoms appear, which give the distinguishing character to this fever; sometimes, however, they appear earlier; at others not until signs of convalescence have occurred. The first symptom is a remarkable degree of stupor; the patient displays the greatest indifference to every thing around him; is with difficulty aroused to answer questions or to take any thing; and seems much disconcerted at having been disturbed. The pulse which was before tolerably full and firm, sinks rapidly, and throbs with a quick unequal motion under the finger; sometimes it is scarcely perceptible, and not unfrequently it cannot be felt at the wrist at all. The heat of the surface too, generally subsides, but in this stage it is very variable, though there is reason to believe that if the patient were left to himself he would become quite cold; indeed this coldness of the skin is very remarkable in a great number of cases; and in some appears to be beyond what is felt in the living body under any circumstances; yet the patient does not appear to feel any uneasiness from it. With this extraordinary reduction of temperature, the skin is not anserated, but cold and clammy; and it sometimes continues for several days. The tongue is

found to be dry and hard, and the teeth and lips become covered with a dark-coloured fur. The patient appears to sleep much during the day, or rather he lies in a kind of stupor without sleeping, but at night is, for the most part, delirious. He now seldom complains of pain, or only in the region of the stomach, where it is sometimes very severe. The vomiting, at this period, often subsides; but frequently also it comes on every day about the same time, and is attended with very painful spasmodic contractions of the stomach. This periodical vomiting observes its periods with great regularity; is a very untractable symptom, and little susceptible of alleviation, by any remedy that has been tried. The vertigo is also exceedingly distressing, and increases so much, in an erect posture, that the patient instantly falls down; and even when recumbent he complains of the giddiness or a very unpleasant sensation in the head. It sometimes continues after the other symptoms have disappeared, and is always extremely tenacious. The symptoms just enumerated continue three, four, or five days; and then gradually subside. But this is, though the most favourable, not the most frequent termination; it oftener happens that the stupor increases to a state of complete coma, or accompanied by muttering delirium, subsultus tendinum, and involuntary discharges. The pulse sinks until it can be no longer felt any where; the whole body becomes cold and cadaverous; and, in some cases, of a deep yellow colour, with no other signs of life than a feeble respiration. Sometimes, at uncer-

tain intervals, the pulse and heat rise, and the patient becomes anxious and restless for two or three hours; then falls again into the former state. But these changes may be effected by the remedies employed, as it is more than probable that they would not so often appear if the patient were left to himself. In this stage, death very frequently happens; but however bad the patient may be, when the formidable symptoms continue above forty-eight hours, it affords a strong presumption that he will recover; and this sometimes has taken place after he has lain in this state for four days. In such instances, when the system emerges from torpidity, the coma first disappears by degrees, and the pulse gradually rises; but the patients continue for a long time in a state of excessive debility, and not unfrequently fall victims to second attacks, or to dysentery. This disease first attacked many of those who had suffered from concentrated fever in July and August; its average duration is twelve days, when it terminates in a quotidian intermittent, convalescence, or death.

It may appear but little in favour of the plan of treatment, to state that out of sixty-one seized with this fever, in December, half of them died; yet when those very formidable symptoms are taken into consideration, it is but fair to infer that remedial measures were not only employed with much advantage in the early, but also in the ulterior stages of the disease, from there being time to put them in practice, according to the existing indications. In the early period of the disease,

Mr. Waller observes, it was always considered necessary to lessen the excitement by bleeding, purgatives, and the other parts of the antiphlogistic regimen. But as this stage of excessive excitement was in some cases of much shorter duration than in others, it frequently happened that the patient did not complain sufficiently early to receive much benefit from depletion, or even to bear any abstraction of blood. Indeed symptoms of exhaustion sometimes appeared even in the first paroxysm, and, in a number of cases, no remission supervened; but whenever it was authorised, the lancet was invariably and freely used in the first stage, and invariably with advantage; in every instance, the bowels were well evacuated by purgatives, and by large and frequent doses of calomel. Emetics, he says, were frequently tried, at first, but not with so good an effect as was expected from them; and but a very short relief from the nausea was experienced after their use, when this symptom existed, in a considerable degree, in the first stage. Upon this point I shall waive any remarks, as occasionally they may have been useful in the modified disease under consideration; but in the inflammatory and rapid yellow fever, I am of opinion that the exhibition of emetics, or of antimonial or other nauseating medicines, cannot be too strongly reprobated. In the present case, it was only in the first attack, or during the exacerbation, that the patient could bear any evacuation, except by the bowels, which were always kept very open, so long as the pulse was at all full, or

retained any firmness; but, when the stupor supervened, he could no longer bear any debilitating process. To allay the gastric irritability, blisters, mercurial frictions, effervescing draughts, small pods of capsicum, &c. were employed, but generally with very little effect. The best remedy seemed to be a grain of opium in a pill, repeated according to the vomiting; but even this was often rejected. So soon as stupor, or coma appeared, stimulants were resorted to; blisters to the head, wine, camphor, ammonia, and mercurial frictions; and, in the low state above described, there is no doubt that the friction itself, as well as the remedy, was of service. The delirium was generally immediately relieved by blistering the head. The formidable degree of coma, Mr. Waller observes, mostly came on in the morning early; but he was unable to ascertain whether it was preceded by any peculiar sensation, by which its approach could be certainly known. The prognosis was unfavourable in proportion to the intensity of coma, reduction of heat, and gastric irritability; little dependence could be placed on the circulation. The danger was great when the patient lay in a state of reverie; much greater when there was delirium in the day time, than when in the night. In the comatose affection, he speaks in the most favourable terms of mercurial frictions, and adduces their success in some cases considered desperate, when the patient had been lying in this lethargic state for four, five, or

more days, with the pulse, for many hours, imperceptible, and the remarkable coldness of skin above described. These frictions required to be frequently and perseveringly repeated; and latterly he was in the habit of rubbing in a drachm or two drachms of the strong ointment every hour; which method seemed preferable to any other. To his opinion of the value of mercury in protracted or congestive cases, after the active stages of fever are past, and particularly to its efficacy in visceral obstructions and derangements which are the sequel of certain fevers, I perfectly subscribe. In many such cases, it is not only a most valuable resource, at a period when we have no other indication to pursue, but also, perhaps, where no other remedy would be successful; but of its inutility, except as a purgative, where there is *high febrile action*, as in the early stage of concentrated yellow fever, I am fully convinced; and trust I need not here deprecate the wasting of those precious moments, when only the disease can be controlled, in fruitless attempts to institute the mercurial action. With respect to the combination of this with the depletory plan of treatment, I am inclined to think that the mercury has often enjoyed a larger share of the credit than it has been entitled to; because in many such cases it has been indebted for the power of exerting its specific action, to the depletion, which, at the same time has been employed. When we can command a warm bath, in cases like those above, I need not say how much it would contribute to the object in view:

it is to be regretted that there does not appear to have been an opportunity of ascertaining the actual temperature of the skin, by the thermometer. With respect to the causes of this fever, Mr. Waller does not offer any decided opinion. It was, at first, attributed to the northerly wind wafting in a very offensive odour from the burying ground; owing to the hasty and imperfect inhumation of the bodies, which was accordingly remedied. The disease certainly began to prevail after the northerly winds set in; but it is unnecessary to add any ætiological observations after what has been said of the abundant sources of deleterious exhalations at Mariegalante.

D. J. H. DICKSON.

P. S.—Dr. Dickson has to apologize to Mr. Waller for the publicity here given to the above interesting document, without previous communication with its author. But the fact was, that he did not know Mr. Waller's address; and the press could not be stopped, without great loss and inconvenience to the author of the work in which the document is inserted. He chose therefore to risk the non-observance of a punctilio, rather than prevent the diffusion of a useful fact or interesting phenomenon in medical science. The same apology is due to Mr. Warden for the publication of his observations on the Chesapeake Endemic; and Dr. D. trusts, that these Gentlemen will consider the foregoing reasons as a sufficient excuse for the steps here taken.

## TETANUS.

SEC. III.—This *opprobrium medicorum*, though an occasional sojourner in all climates, has its principal seat and throne between the tropics. The disease, however, is equally fatal, though not near so frequent, in a cold, as in a warm climate. According to my own experience, and that of most of my naval and military friends, the *traumatic* is greatly more dangerous than the *idiopathic* species, though this sentiment does not accord with that of Dr. Morrison, the latest writer on the subject.

The *Symptomatology* of Tetanus is by no means necessary in this place, since it is impossible for the veriest tyro to mistake the disease. Some pathological and therapeutical observations only will here be introduced.

*Pathology*.—Dr. Morrison, in his recent treatise on Tetanus, asserts that dissection has thrown little if any light on the seat or nature of the disease. But some late papers and investigations would seem to diffuse a ray of light on the obscurity of this pathological tract, and induce us to believe that we have too long neglected the morbid anatomy of the spinal cord, and of the medulla oblongata, in diseases attended with violent spasmodic affections. Dr. Saunders, of Edinburgh, has long laboured in the developement of this dark subject, and not without great success. The harmonious

balance, not only of the circulation in itself, but in its relation with the nervous system, has too long been overlooked; but new light is now breaking in upon our minds from the tomb. The *inequilibrium* in the balance of the *excitement*, which exists in almost all diseases, is here evinced, in characters that can hardly fail to be understood. While the class of voluntary muscles is in complete spasm, various organs—more especially the chylo-poetic viscera, are utterly torpid.—This *inequilibrium* in the balance of the excitement shews itself, even before the developement of spasms, in the torpor and costiveness of the alimentary canal *precursory* of, and cotemporaneous with *Tetanus*, as was sagaciously remarked by that accurate observer of nature, Dr. Dickson, in the 6th Volume of the *Medico-Chirurgical Transactions*.

We must therefore look to the origins of those nerves which supply spasmed muscles, for the immediate seat of the mischief; and there it will be found, without a doubt. Dissections of the base of the brain, medulla oblongata, and medulla spinalis, have not, till lately, been prosecuted with any thing like accuracy.

Dr. Reid has now forcibly drawn the attention of the medical world to this subject, and it will, no doubt, be well investigated. It has long been remarked, indeed, that in *Tetanus* the natural functions are little affected, and the same may be said of the intellectual functions, and those muscles and organs supplied by the nerves of sense. These considerations naturally lead to the con-

clusion that the thoracic and abdominal viscera are not primarily affected, and that the origin of the disease is not in the nervous substance supplying those organs—in short, that the cerebral and ganglionic systems are only drawn in *subsequently*, and that the spinal cord is the original and principal seat of Tetanus.

*Case in elucidation* [from Dr. Reid].—A boy 14 years of age, after receiving a severe bruise in the toes of the right foot, was exposed to the vicissitudes of the weather in the month of February. He was seized four or five days afterwards, with tetanus, and died in thirty-six hours. *Dissection*.—Viscera of the abdomen and thorax perfectly sound, as were all the muscular parts. On opening the spine, *from the back part*, and on raising the nervous mass (with its dura mater entire) from the spine, “there appeared a considerable effusion of blood into the cellular tissue, connecting it to the upper lumbar, and lower dorsal vertebræ. A similar effusion occurred also along the bodies of the upper dorsal and two lower cervical vertebræ. On slitting up the dura mater on the anterior surface, the nervous mass appeared highly vascular, and the vessels of every description remarkably tortuous. The only appearance in the nervous substance itself, was a deeper tinge than natural in its cortical and medullary parts.”

From these appearances, corresponding with the investigations of Dr. Sanders, it follows that Tetanus is radically an inflammatory disease. But general blood-letting here will not be near so efficacious as local ab-

stractions of blood from the spine—blisters—purgatives—and finally, mercury and opium to equalize the balance of the circulation and excitement. The following observations from Dr. Morrison, the latest writer on tropical tetanus, may be appropriately introduced here.

Dr. Morrison was led to compose his present Treatise on Tetanus, from having had considerable experience in that disease, during an eight years practice in the Colony of Demerara, where it is of frequent occurrence. The land of this part of the South American Continent is low, flat, and marshy, abounding with swamps, and, with the exception of a stripe along the banks of the Demarara, is covered with trees of various dimensions, whose roots, for a great part of the year, lie bedded in water. The prevalent diseases are intermittents, fever, hepatitis, enteritis, rheumatism, dysentery, and, among children, hydrocephalus.

Dr. M. does not look upon Tetanus, even the traumatic form, as so very dangerous a disease, in tropical climates, as authors have represented it. He has witnessed many instances of recovery both from traumatic and idiopathic tetanus, and, strange as it may appear, the instances of cure in the *former* have been nearly as numerous as in the *latter*. In upwards of twenty cases of this disease which he witnessed among negroes, the pulse was in no instance, accelerated in the manner related by Dr. Parry. He has never known it above 98, whether the termination was favourable or fatal. The following prognostic passage we shall transcribe.

“ When the disease comes on gradually; when for the first three or four days the muscles of the jaws are solely affected, and that perhaps not in any alarming degree; when the abdomen is not preternaturally hard, or the bowels obstinately costive; when the skin is moist and moderately warm, and above all, when the patient enjoys sleep, we may (by the means hereafter to be spoken of) entertain strong hopes of an eventual recovery. An increased flow of saliva where mercury has, or has not been used, is always to be regarded as favourable; the less the general air of the countenance is changed, the better. On the other hand, when the attack is violent and sudden; when the muscles of the neck, back and abdomen, are rigidly contracted; when the patient complains of a shooting pain from the sternum towards the spine; when the belly feels hard like a board, and the least pressure thereon produces spasmodic twitchings or contractions of the muscles of the neck, jaws, &c.; or when the same effect is brought about by the presentation of any substance (solid or fluid) near the mouth, we have much reason to fear a fatal termination. Spasmodic startings of the muscles set in sometimes early in the disease, and recurring every eight or ten minutes, are to be regarded as very unfavourable.”

p. 29.

The only disease which tetanus can be confounded with, is rabies contagiosa. In the latter, however, there is generally fever; frequently increased heat of the body. In rabies contagiosa, vomiting is common at the com-

mencement; not so in tetanus. The delirium too of hydrophobia is absent in tetanus. The shooting pain from the sternum to the spine is seldom wanting in tetanus or present in the other.

*Treatment of Tetanus.*—Dr. M. believes, that spontaneous cures do occasionally take place in tropical climates. One decided instance of traumatic tetanus giving way to the efforts of Nature fell under his own observation. The treatment of idiopathic and symptomatic tetanus is considered the same. For although it is common and proper in the West Indies to apply some stimulating substances as ol. terebinth. or the like, to recent wounds, together with emollient cataplasms, so as to induce free suppuration, yet when constitutional tetanic symptoms have once commenced, there is little or no dependence on local treatment. By way of prevention, Dr. Clarke advises a slight mercurial ptyalism to be brought on after wounds in hot climates, or under suspicious circumstances. For the same purpose, the complete division of half divided nerves, tendons, &c. might be proper. The Spanish physicians bathe the wound, for an hour or more, in warm oil, while some subsequently apply lunar caustic, superacetate of lead, &c. The principal general remedies that have been recommended are, the cold affusion, mercury, opiates, wine and bark, the warm bath, cathartics, blisters, anti-spasmodics. We shall not stop to notice the history of each of these remedies, but give the substance of Dr. M's own remarks and experience. During the Doctor's first three years residence in Demerara, and in the first eight or

ten cases, the *cold affusion* was invariably used, but with so little success that it was ultimately left entirely off, and the warm bath substituted.

*Mercury.*—Spontaneous salivation has often been observed in tetanic patients whose cases terminated favourably, hence probably the first idea of using mercury. In hot countries tetanus is seldom so rapid as to prevent the introduction of mercury in quantity sufficient to salivate, before the disease runs its course, whether favourably or fatally; and, as in all climates mercury interferes not with other remedies, Dr. M. thinks its administration ought never to be omitted.

“ I undoubtedly have had many examples of the good effects from mercury in the cure of this disease. Four grains of calomel given two or three times a day, with three or four drachms of the ointment well rubbed on the neck and spine night and morning, I believe to be excellent practice. A much larger quantity of the ointment may be used on different parts of the body; indeed, the more continued the friction, the better. The constitution labouring under this disease, will mostly appear as proof against the usual effects of this medicine; but when salivation can be brought about, it will in a great majority of cases be found to be attended with the happiest consequences. Allowing the spontaneous salivation which sometimes occurs, to be more the effect than the cause of the cure, still we should be inclined to throw in large quantities of mercury, merely with a view of bringing on any different action in the system.”

The submuriate of mercury with scammony or jalap as a purge is also recommended by our author.

*Opium.*—This appears the sheet anchor of our author in this disease. He has met with more than a dozen cases where the cure of tetanus could be fairly attributed to this medicine; and he has met with no instance of recovery in which he did not conceive that it bore a principal part. It must be given, however, in very large doses, the system under tetanus being little affected by doses of opium that in other circumstances would produce striking effects.

“A practitioner,” says Dr. M. “for whose acuteness and discernment I have great respect, gave to an old man, in my presence, who was in an incipient stage of this disease, about *half an ounce* of tincture of opium in four ounces of rum, as a *first dose*, directing, at the same time, the spirit to be frequently repeated, and the man got perfectly over the complaint in a few days.” 57.

Dr. M. directs that an adult should commence with one hundred drops of the tincture (bowels being opened) increasing each succeeding dose one-third every two hours, unless sleep or stertor in the breathing ensue; ordering at the same time, wine or ardent spirits, in as large quantities as the patient can be induced to swallow. A pint of spirits, or double that quantity of wine in the twenty-four hours will not be too much. Tincture of opium is also to be rubbed on the spine.

*The Warm Bath* is regarded by our author in a favourable point of view. It has afforded much present relief on several occasions under his own eye, where the

spasmodic twitchings were frequent and troublesome. He depends very little on it, however and justly observes, that the exertion or movement which the patients must undergo, in order to get into the bath, will often more than counterbalance any good effects that can be expected from it. Patients are so alive to all external impressions, that the least exertion is often sufficient to excite violent spasms. On this account, the patient should be kept as quiet as possible, and very few questions asked him. The chamber should be kept darkened, and every thing tending to excite mental exertion avoided.

*Blisters*, though recommended in high terms by a few medical practitioners, can only be looked upon in the light of adjuvants. The course of the spine appears the best site of their application.

*Bark and Wine*.—Dr. M. recommends, that during the exhibition of opium, large quantities of wine or diluted alkohol be administered, in order to second its effects.

*Recapitulation*.—“ The bowels should be kept as free as possible. We must endeavour to bring about an operation every twelve hours. This, even by the aid of strong cathartics, or purgative injections, will be found very difficult to be obtained; the sphincter ani sometimes scarcely admitting the introduction of a glyster-pipe, and the exhibition of the strongest purgatives may often be attended with little or no effect. Sulphate of soda, jalap and calomel, scammony, pil. aloes cum colo-cynthide, &c. are as proper for this purpose as any

other, aided by stimulating cathartics, such as solution of muriate or sulphate of soda, with olive oil; the resin of turpentine, suspended by the yolk of an egg; solutions of soap, &c. I have found it on two or three occasions, impossible to open the bowels freely, till after large quantities of opium, had been taken, which seemed to bring about a general relaxation; or until the system had been evidently under the influence of mercury; and, indeed, these are the two medicines on which we are to place the greatest confidence, in the treatment of this disease: they must be given, however as before remarked, in large doses, and frequently repeated. I once gave a patient, who is, I believe, still living, ten grains of opium and twenty of calomel, in pills, and five ounces of tincture of opium, in wine, all in the space of twelve hours.

“ Next to opium, I certainly look on the preparations of quicksilver as the most valuable. Large quantities of the ointment may be rubbed in on the spine, neck, legs, &c. with repeated doses of submuriate internally. Wine and ardent spirits should be given freely; indeed, the constitution here appears as insensible to their usual effects, as to those of opium; and quantities, which in a state of health, would produce stupid intoxication, now neither exhilarate the spirits, nor disturb that serenity of mind so conspicuous throughout the disease.

“ The *warm bath* will often be found a useful auxiliary; when we expect to derive advantages from it, the vessel used should be so capacious, as to allow the

patient to be as little confined as possible, and the water should be sufficient to cover the shoulders completely. I have found a common rum puncheon sawed across at the centre, very convenient for this purpose.

“I have generally used blistering plasters, but confess I have never experienced much benefit from their application.

“When the disease is conquered, the patient should take wine and bark for many weeks.” p. 70.

On the above passage I would remark that the local abstractions of blood by leeches and cupping from the neighbourhood of the spine, with subsequent blisters there, are not inconsistent with the plan of treatment recommended by Dr. Morrison. For it must be remembered that such is the unequal distribution both of the blood and excitability in the system, under this disease, that one part is completely torpid while another is on the point of extravasation from turgescence or inflammation. It is evident from this view of the affair, that we must stimulate the torpid organs at the very moment we are employing sedatives, and counter-irritants, or abstracting blood from the congested parts.—Hence too the great value of purgatives and mercury. The former bring back the excitement to the abdominal viscera, and powerfully determine from the spine: the latter sets all the secretory and excretory apparatus to work, while it equalizes the circulation in every part of the system.

*Copy of a Report, transmitted to Dr. Dickson, on his joining the North American Fleet, in June, 1814.*

*H. M. S. ALBION, off Tangier Island, July 1, 1814.*

SIR,—A small tract of your's addressed to Naval Surgeons on the Leeward Island station, in the year 1810, was put into my hands a few days ago, and which I read with great satisfaction. The anxious solicitude which it conveys for the public weal induces me to forward to you a few lines, explanatory of the autumnal epidemic of this climate, which made a formidable attack upon us last season, while operations were carrying on within the banks of the Chesapeake.

Yours respectfully,

WILLIAM WARDEN.

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*Symptoms and treatment of the Autumnal Endemic generally prevalent during the months of July and August, in the Chesapeake, by WILLIAM WARDEN, Esq\*. (communicated by Dr. Dickson, Physician to the Fleet.†)*

SEC. IV.—About the beginning of August, 1813, a fever of a remittent type made its appearance in the fleet, while at anchor off Kent Island, in the Chesa-

\* The ingenious author of the very interesting letters from St. Helena.

† See note to the Mariegalante Fever, page 211.

peake. It was confined solely to those who had communication with the Island, and in the Sceptre, the marines who were employed on shore on duty, were the principal sufferers.

There was nothing perceptibly contagious in its nature; and by every information I could gain, it appeared to be the autumnal endemic of the climate, the temperature of which, at that time, ranged from between 80 and 85 of Fahrenheit's scale—nay, by some it was observed to rise to 92°.—The paroxysm at the beginning was generally ushered in by a cold stage, terminating in a profuse perspiration; but this mode of commencement in the majority of instances, seldom continued longer than a couple of days; the hot stage becoming afterwards the first part of the paroxysm. Neither did a relaxation of the surface always follow, sometimes the remission being only evinced by the diminution of temperature, and the decrease of the fullness and frequency of the pulse. The paroxysms (although evidently favouring a tertian return) did not always observe a stated period; neither did their frequency of attack, in every instance, correspond; sometimes one and often two being perceptible in the 24 hours; the first having its accession at noon, and the second at an uncertain hour in the night. In every instance there was a marked determination to the head, occasioning in some delirium, and in others head-ache, giddiness, and stupefaction. Next followed a sharp cutting pain across the epigastrium, attended by some slight oppres-

sion of the organs of respiration, indicating a sympathetic affection subsisting between the abdominal viscera and the thoracic, rather than any peculiar determination to the latter;—also pain about the back and loins, with spasms of the calves of the legs. The countenance, at commencement, was generally flushed; but in a few days assumed a deep sallow hue. The eye partook of the same colour; and in a few cases the pupil became dilated. Tongue always foul, and thirst, at times urgent. Bowels inclined to be costive. Urine discoloured. The pulse was generally quick, full, and strong at the commencement; but in the progress of the disease varied considerably; being full in some, quick and small in others, and in a few not more than natural. Despondency and the language of complaint were a marked indication of an aggravated disease.

A few of the first cases were to appearance slight; partaking more of a sporadic febrile action than any specific disease; therefore they were treated on application with emetics, purgatives, and cold affusions; and the exhibition of calomel and antimony, with bark and quassia during the remissions.—These, with blisters to the temples, were principally trusted to;—but, as the disease became better marked, and its nature and cause more fully ascertained, repeated bleeding and purging at the commencement were found productive of more permanent benefit; and, in course of time, entirely superseded the use of the *cold affusion* and emetics, which were ultimately found to be either prejudicial or

of little or no utility. The bleeding was always followed by a reduction of temperature; and if syncope came on, by a relaxation of the surface also. It evidently facilitated the mercurial action on the system, and seemed to prepare it sooner for a due exhibition of the bark. The soreness of the mouth was always marked as a sure symptom of convalescence, but while I pronounce this as a fact in every case where slight ptyalism was produced, I do not subscribe to the infallibility of this active agent (mercury;) rather would I affirm that the system of depletion subdued the disease, and a peculiar lively action of the absorbent system (hitherto torpid) immediately following, soon affords both patient and practitioner a sure characteristic of the termination of this formidable disease. The convalescent stage became more protracted than I could have any belief of; and perhaps this circumstance may be accounted for from our proceeding to the southward, where we experienced no diminution of temperature, and throughout the whole stage of recovery, we were limited to the ship's allowance of provisions, assisted by the few necessaries remaining at that time in my charge. To the best of my recollection we had 54 cases of bilious remittent fever. Of that number 52 recovered, and two died.—The *Seeptry* arrived at Bermuda on the 20th of September, when few or none remained confined to their beds; therefore it was found unnecessary to remove any of them to the naval hospital.

**P. S.**—In four days after quitting Kent Island, the

fever began to assume a formidable appearance: and 294 cases were reported in the fleet, including those in the Sceptre; a survey was therefore held on the 3rd of September, 1813, by two naval, and a military surgeon (pursuant to an order from Admiral Sir J. Warren, to enquire into the nature of the fever, and the best mode of practice,) who, after visiting the Diomede, Diadem, Romulus, Fox, Nemesis, Success, and Sceptre; reported that the disease was the bilious, or autumnal remittent of the climate, marked by inflammatory or increased vascular action, with strong determination to the brain, and abdominal viscera; that the disease seemed checked by the mode of treatment, and the majority were recovering; that should the services of the troops be further required, they strongly recommended the removal of the worst cases from the troop ships; but that the disease did not appear to be of a contagious nature, as without a single exception, the cases were solely confined to those who had been exposed to marsh miasmata on Kent Island.

P. S. to the Western Hemisphere.

[*The Section on Endemic of New Orleans ought to have come in here, but was obliged to be postponed to the end of the work, as an Appendix.*]

## PART III.

## TROPICAL HYGIENE;

OR,

A CODE OF INSTRUCTIONS FOR THE PRESERVATION OF  
HEALTH IN ALL HOT CLIMATES.

ADAPTED TO GENERAL PERUSAL.

Prestat argento, superatque fulvum  
Sanitas aurum, superatque censem  
Quamvis ingentem, validæque vires  
Omnia prestant.

As prevention is better than cure, it might seem more natural to have detailed the means of preserving health, before entering on the treatment of diseases themselves. This plan has accordingly been adopted by Dr. Moseley; but I think it an injudicious one. In describing *effects*, I have traced pretty minutely their *causes*; and in that way must have obviated a vast tautology in this part of the work. Besides, by exhibiting both causes and effects in one view, I am convinced that the salutary impression is always stronger. For example; could the gravest anathema, denounced with all due solemnity, against sleeping ashore on insalubrious coasts, excite half so much interest in the mind of an European, as the fatal catastrophe at Edam Island?—But another

great point is gained by this plan. The various reasonings and remarks which accompanied the description and treatment of diseases, will enable even the general reader to comprehend, with infinitely more ease, the *rationale* of those prophylactic measures, which I am now to delineate; and which, at every step, will recall to his memory the deplorable effects resulting from a contempt of them. This is no inconsiderable object; for we all know the gratification which springs from understanding what we read. And, in truth, it is a pleasure—nay, it is a positive advantage, to be able to explain, even on a *false theory*, the principles of a *useful practice*. But as theory, in this instance at least, is the legitimate offspring of experience, so, I trust, the superstructure is as firm as the foundation.

It has been remarked, by a very competent judge, “that by taking the general outline of indigenous customs for our guide, if we err, it will be on the safe side.” This is a good rule; but, unfortunately, it is impracticable—by those, at least, who stand most in need of one. For, before we can become acquainted with these indigenous customs, it will be too late for many of us to adopt them; and could we see them at one *coup d’œil*, when we first enter a tropical climate, how are we to avail ourselves of them, unless they happen to be in unison with the habits of our countrymen already resident there, who would not fail to sneer at the adoption of any plan which had not the sanction of their superior experience. But independently of this, it would be strange if the progress which has been made in the

knowledge of the animal economy, as well as in other sciences, did not enable us to correct many "indigenous customs," which, in reality, have ignorance, superstition, or even vice for their foundation. This applies particularly to the eastern world, where the natives are neither in a state of nature, nor yet refinement; but where we see a strange medley of ludicrous and ridiculous customs—of Hindoo and Mahomedan manners, from which the European philosopher may glean much useful local knowledge, while he exercises his reason and discrimination, in separating the grain from the chaff.

Another advice has been given us; namely, to observe and imitate the conduct of our own countrymen long resident in the climate. This is certainly the most practicable; but, in my opinion, it is not the safest plan. And for this plain reason, that *residence* alone confers on them immunities and privileges, of which it would be death for us, in many instances, to claim a participation, before the period of our probation has expired. I think I shall be able to shew, hereafter, that the unseasoned European may apply, with safety, certain preventive checks to the influence of climate, which would be inconvenient, if not hazardous, to those on whom the said influence had long operated. The stranger, then, must go with the general stream of society, especially at the beginning; but there is no situation even here, where he may not obviate, in a great measure, the first and most dangerous effects of the new climate, by a strict observance of two fundamental rules

—TEMPERANCE and COOLNESS. The latter, indeed, includes the former; and, simple as it may appear, it is, in reality, the grand principle of Inter-tropical Hygiene, which must ever be kept in view, and regulate all our measures for the preservation of health.

Common sense, independently of all observation or reasoning on the subject, might, *a priori*, come to this conclusion. From *heat* spring all those effects which originally *predispose* to the reception or operation of other morbid causes. And how can we obviate these effects of *heat*, but by calling in the aid of its antagonist, *cold*?\* To the *sudden* application of the *latter*, after the *former* has effected its baneful influence on the human frame, I have traced most of those diseases attributable to climate; nothing, therefore, can be more reasonable, than that our great object is to moderate, by all possible means, the *heat*, and habituate ourselves from the beginning to the impressions of *cold*. The result will be, that we shall thereby bid defiance to the alternations or *vicissitudes* of both these powerful agents. This is, in truth, the grand secret of counteracting the influence of tropical climates on European constitutions; and its practical application to the common purposes of life, as well as to particular exigencies, it shall now be my task to render easy and intelligible. For the sake of perspicuity, I shall here, as hitherto, class my observations under separate heads; though, from the

\* I overlook the useless litigation respecting cold being the absence of heat.

nature of the subject, I shall consider myself much less shackled, or tied down to forms, than in the two preceding parts of the essay; and consequently, shall not be over nice in confining myself to a dry, didactic rehearsal of medical rules and precautions. The scope and purport of any digression, however, shall always point to my principal design—the preservation of health.

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## DRESS.

SEC. I.—I shall not stop here, to inquire whether this be an unnecessary luxury of our own invention, or originally designed for us by our Creator. The force of habit is, no doubt, great; and the Canadian who, in reply to the European's inquiry, respecting his ability to bear cold applied to his naked body, observed, that “he was *all face*,” gave no bad elucidation of the affair. Passing over the great African peninsula, where man enjoys that happy state of nudity and nature, mental as well as corporeal, on which our learned philosophers have lavished such *merited* encomiums, we come to the ancient and civilized race of Hindoos; and here, too, we shall be constrained to admire the almost omnipotent power of custom, as exemplified in the persons of some of the first objects that arrest our attention.

The habiliment of the Bengal *dandy*, or waterman, who rows or drags our *budjrow* up the Ganges, consists in a small, narrow piece of cloth [doty] passed between

the thighs, and fastened before and behind to a piece of stout packthread, that encircles the waist. In this dress, or undress, corresponding pretty nearly to the *figleaf* of our great progenitor, he exposes his skin to the action of a tropical sun—a deluge of rain, or a piercing *north-wester*, with equal indifference! After “tugging at the oar,” for hours together, in the scorching noontide heat, till perspiration issues from every pore, he darts overboard, when necessary, with the track rope on his shoulder, and wades through puddles and marshes—this moment up to the middle, or the shoulders in water—the next, in the open air, with a rapid evaporation from the whole surface of his body! All this, too, on a scanty meal of rice, being seldom paid more than—*three-pence per day board wages!*

Here is one of those indigenous customs, which we shall not find it very safe to imitate; though many of our keen European sportsmen have undergone for pleasure, or in search of a snipe, what the poor *dandy* is forced to perform for a livelihood. It is hardly necessary to remark, that such pursuits are at the risk of life, and are highly destructive of health.

But, independent of habit, Nature has previously done a great deal towards the security of the *dandy*, by forming the *colour*, and in some respects the *texture*, of his skin, in such a manner, that the extreme vessels on the surface are neither so violently stimulated by the heat, nor so easily struck torpid by sudden transitions to cold. Certain it is, that the action of the perspiratory vessels too, is different from that of the same ves-

sels in Europeans—at least, they secrete a very different kind of fluid; being more of an oily and tenacious nature than the sweat of the latter. This, in conjunction with the oil so assiduously and regularly rubbed over the surface, every day, by all ranks and casts of both sexes, must greatly tend to preserve a softness and pliability of the skin, and a moderate, equable flow of perspiration.\*

But if we look beyond the hardy and labouring casts of natives, we observe both Hindoo and Mahomedan guarding most cautiously against solar heat, as well as cold. The *turban* and *cummerbund* meet our eye at every step:—the former, to defend the head from the direct rays of a powerful sun; the latter, apparently, for the purpose of preserving the important viscera of the abdomen from the deleterious impressions of cold. This [cummerbund] is certainly a most valuable part of their dress; and one that is highly deserving of imitation.

Such are the *essential* articles of Native dress; the light, flowing robes of cotton, silk, calico, &c. varying according to the taste or circumstances of the wearer, and being more for ornament than use. A very good

\* It is curious, that the upper classes of native ladies, especially Mahomedan, as if determined that nothing of European complexion should appertain to them, are in the habit of staining red, with the *mindy* or *hinna* plant, the palms of their hands and soles of their feet, the only parts of the external surface where the *rete mucosum*, or seat of colour among them, cannot maintain its deep tint, on account of the friction.

substitute for the *turban* is a large cotton handkerchief, folded up in the hat; and where we are exposed to the direct influence of solar heat, it may with much advantage, be kept moistened with water. In situations where atmospherical vicissitudes are sudden, a fine shawl round the waist forms an excellent *cummerbund*, and should never be neglected, especially by those who have been some time in the country, or whose bowels are in any degree tender.

When we enter the tropics, we must bid adieu to the luxury of linen—if what is both uncomfortable and unsafe, in those climates, can be styled a luxury. There are many substantial reasons for so doing. Cotton, from its slowness as a conductor of heat, is admirably adapted for the tropics. It must be recollected, that the temperature of the atmosphere, *sub dio*, in the hot seasons, exceeds that of the blood by many degrees; and even in the shade, it too often equals, or rises above, the heat of the body's *surface*, which is always, during health, some degrees below 97°. Here then, we have a covering which is *cooler* than linen; inasmuch as it conducts more slowly the *excess* of external heat *to* our bodies. But this is not the only advantage, though a great one. When a *vicissitude* takes place, and the atmospherical temperature sinks suddenly far below that of the body, the cotton, still faithful to its trust, abstracts more slowly the heat *from* our bodies, and thus preserves a more steady equilibrium there. To all these must be added the facility with which it absorbs the perspiration; while linen would feel quite

wet, and during the exposure to a breeze under such circumstances, would often occasion a shiver, and be followed by dangerous consequences.

That woollen and cotton should be *warmer* than linen in low temperatures, will be readily granted; but that it should be *cooler* in high temperatures, will probably be much doubted. If the following easy experiment be tried, the result will decide the point in question. Let two beds be placed in the same room, as Madras, we will say, when the thermometer stands at 90°; and let one be covered with a pair of blankets, the other with a pair of linen sheets, during the day. On removing both coverings in the evening, the bed on which was placed the blankets, will be found *cool* and pleasant; the other uncomfortably warm. The reason is obvious. The linen readily transmitted the heat of the atmosphere to all parts of the subjacent bed; the woollen, on the contrary, as a non-conductor, prevented the bed from acquiring the atmospherical range of temperature, simply by obstructing the transmission of heat from without. This experiment not only proves the position, but furnishes us with a greatful and salutary luxury, free of trouble or expence.—The musical ladies of India are not unacquainted with this secret, since they take care to keep their pianos well covered with *blankets* in the *hot season*, to defend them from the heat, and prevent their warping.

From this view of the subject, *flannel* might be supposed superior to *cotton*; and indeed, at certain seasons, in particular places—for instance, Ceylon, Bombay,

and Canton, where the mercury often takes a wide range, in a very short space of time, the *former* is a safer covering than the latter, and is adopted by many experienced and seasoned Europeans. But, in general, flannel is inconvenient, for three reasons. First, it is too heavy; an insuperable objection. Secondly, where the temperature of the atmosphere ranges pretty steadily a little below that of the skin, the flannel is much too slow a conductor of heat *from* the body. Thirdly, the spicula of flannel prove too irritating, and *increase* the action of the perspiratory vessels on the surface, where our great object is to *moderate* that process. From the second and third objections, indeed, even cotton or calico is not quite free, unless of a fine fabric, when its good qualities far counterbalance any inconvenience in the above respects.

In some of the upper provinces of Bengal, where the summer is intensely hot, and the winter sharp, the dress of native shepherds, who are exposed to all weathers, consists in a blanket gathered in at one end, which goes over the head, the rest hanging down on all sides like a cloak. This answers the triple purpose of a *chattah* in the summer, to *keep out* the heat—of a tent in the rainy season, to *throw off* the wet—and of a coat in the winter, to defend the body from the piercing cold. Hence, our ridicule of the Portuguese and Spaniards, in various parts of the world, for wearing their long black cloaks in summer, “*to keep them cool*,” is founded on prejudice rather than considerate observation.

The necessity which tyrant custom—perhaps policy, has imposed on us, of continuing to appear in European dress—particularly in *uniforms*, on almost all public occasions, and in all formal parties, under a burning sky, is not one of the least miseries of a tropical life! It is true, that this ceremony is often waved, in the more social circles that gather round the supper-table, where the light, cool, and elegant vesture of the East, supersedes the cumbrous garb of Northern climates. It is certainly laughable, or rather pitiable enough, to behold, for some time after each fresh importation from Europe, a number of *griffinish* sticklers for decorum, whom no persuasions can induce to cast their *exuviae*, even in the most affable company, pinioned, as it were, in their stiff habiliments, while the streams of perspiration that issue from every pore, and ooze through various angles of their dress, might almost induce us to fear that *they* were on the point of realizing Hamlet's wish; and that in good earnest, their

“ Solid flesh would melt—  
Thaw, and resolve itself into a dew !”

It too often happens, however, that a spice of ceremony attaches to the kind host—or perhaps hostess, in which case, as no encouragement will be given to derobe, the poor griffin must fret and fume, with prickly heat and perspiration, till the *regalement* is concluded. By this time he is, doubtless, in an excellent condition for encountering the raw, chilling vapours of the night, on his way home!

It were “a consummation devoutly to be wished,”—though, I fear, little to be expected, that the European badges of distinction, in exterior decoration, could be dispensed with, at all festivals, public and private—formal, social, or domestic, within the torrid zone. It requires but the most superficial glance to perceive, that coolness during our repasts is salutary, as well as comfortable; and that, from the extensive sympathies existing between the skin and several important organs, particularly the stomach and liver, that the converse of the position is equally true; especially as, in the *latter* case, we are led a little too much to the use of “gently stimulating liquids, to support the discharge;” the bad consequences of which are pointed out in the first part of this essay, and will be again considered in the section on Drink.

There is an injurious practice, into which almost every European is led, on first visiting a tropical climate, but particularly the Eastern world, which has never been noticed, I believe by medical writers, though well entitled to consideration. In the country last mentioned, body linen, or rather cotton, is remarkably cheap, and washing is performed on such moderate terms, that one hundred shirts may be even *bleached* for about 10s. sterling, on an average. A large stock of these useful articles is, then the first object of northern strangers, which “*Blacky*,” indeed, knows full well, and takes especial care to turn to his own advantage. But this is a trifling consideration. The European, contemplating, with great satisfaction, the multitude of changes he has thus cheaply amassed, and

calculating the very reasonable terms of ablution, determines to enjoy, in its fullest extent, a luxury which he deems both salutary and grateful, independently of all considerations respecting appearance. It is therefore very common to see him shift his linen three or four times a-day, during the period of his novitiate, when perspiration is indeed superabundant.—But, let me assure him, that he is pursuing an injudicious,—nay, an injurious system; that the fluid alluded to already in excess, is thus powerfully solicited; and the action of the perspiratory vessels, with all their associations, morbidly increased, instead of being restrained. But what is to be done? The newly-arrived European justly observes, that he finds himself drenched with sweat, three or four times a day, in which state he cannot remain with either safety or comfort. Certainly it would be useless to point out the evil, without suggesting the remedy; and happily it may be obviated, to a considerable extent, in a very simple and easy manner. In those climates, when linen becomes wet in a few hours with perspiration, it by no means follows that it is soiled thereby, in any material degree. It should not, therefore, be consigned to the wash, but carefully dried, and *worn again*, once, or even twice; and that, too, without the smallest infringement on the laws of personal cleanliness, but with the most salutary effect on the health. It is astonishing how much less exhausting is the linen, which has been once or twice impregnated with the fluid of perspiration, than that which is fresh from the mangle. By this plan, no more than one shirt is ren-

dered unfit for use every day; and in cool weather, or at sea, not more, perhaps, than four shirts a week. Necessity, the mother of invention, first taught me this piece of knowledge, in consequence of having lost my stock once, by sailing suddenly from Trincomalee; but I know that, however trivial the circumstance may *appear*, an attention to what I have related will, in reality, prove more beneficial than precautions of seemingly greater magnitude. Its rationale is in direct unison with the grand and fundamental object in tropical prophylactics—**TO MODERATE, WITHOUT CHECKING THE CUTICULAR DISCHARGE.**

The propriety which *frequent* change of linen has, in exciting cuticular secretion, and the effects resulting from the sympathy of the skin with the stomach, liver, and lungs, may account, in a great measure, for the superior health which accompanies cleanliness, in our own climate; and, on the contrary, for the diseases of the indigent and slovenly, which are almost invariably connected with, or dependent on, irregularity or suppression of the cuticular discharge. Intelligent females well know the *peculiar effect* of clean linen on themselves, at particular periods.

To the above observations on dress, I may add, that no European should, where he can avoid it, expose himself to the sun between the hours of ten and four in the day. If forced, during that period, to be out of doors, the *chattah* should never be neglected, if he wish to guard against *coup de soleil*, or some other dangerous consequence of imprudent exposure.

## FOOD.

Ut semel dicam, una gula est omnium morborum  
Mater. etianisi aliis est genitor.—*Fernelius.*

SEC. II.—Although I entirely agree with Celsus, that—“*sanis omnia sana;*” and with a late eminent physician, that an attention to *quantity* is of infinitely more consequence than *quality* in our repasts; and although I also believe, that an over-fastidious regard to either will render us unsit for society, and not more healthy after all; yet, when we change our native and temperate skies of Europe for the torrid zone, many of us may find, when it is too late, that we can hardly attend too strictly to the quantity and quality of our food, during the period of assimilation, at least, to the new climate; and that a due regulation of this important non-natural will turn out a powerful engine in the preservation of health.

It is now pretty generally known, from dire experience, indeed, that instead of a disposition to *debility and putrescence*, an inflammatory diathesis, or tendency to *plethora*, characterises the European and his diseases, for a year or two, at least, after his arrival between the tropics; and hence provident Nature endeavours to guard against the evil, by diminishing our relish for food. But alas! how prone are we

“————— to spur beyond  
Its wiser will, the jaded appetite,”

not only “by dishes tortured from their native taste,”

but by the more dangerous stimulants of wine or other liquors, as well as condiments and spices, which should be reserved for that general relaxation and debility which unavoidably supervene during a *protracted residence* in sultry climates. Here is an instance where we cannot *safely* imitate the seasoned European. Indeed, there are no points of Hygiene, to which the attention of a new-comer should be more particularly directed, than to the *quantity and simplicity* of his viands; especially as they are practical points entirely within his own superintendance, and a due regulation of which, is not at all calculated to draw on him the observation of others—a very great advantage.

Every valetudinarian, particularly the hectic, knows full well the *febrile paroxysm* which follows a full meal: the same takes place in every individual, more or less, whatever may be the state of health at the time. How cautious, then, should we be, of exacerbating these natural paroxysms, when placed in situations where various *other* febrifacient causes are constantly impending over, or even assailing us! The febrile stricture which obtains on the surface of our bodies, and in the secerning vessels of the liver, during the *gastric digestion* of our food, as evinced by a diminution of the cutaneous and hepatic secretions, will, of course, be proportioned to the duration and difficulty of that process in the stomach, and to the quantity of *ingesta*; and as a corresponding *increase* of the two secretions succeeds, when the chyme passes into the intestines, we see clearly the propriety of moderating them by absti-

miousness, since they are already in *excess*, from the heat of the climate alone; and this *excess* is one of the first links, in the chain of causes and effects, that leads ultimately to various derangements of function and structure in important organs, as exemplified in hepatitis, dysentery, and in many parts of this essay.

That vegetable food, generally speaking, is better adapted to a tropical climate than animal, I think we may admit; and particularly among unseasoned Europeans:—not that it is quicker or easier of digestion, (it certainly is slower in this respect) but it excites less commotion in the system during that process, and is not so apt to induce plethora afterwards. It is very questionable where the ancient Hindoo legislators had not an eye rather to policy than health, when they introduced the prohibition of animal food as a divine mandate. They probably thought, and in my opinion with good reason, that the injunction would tend to diffuse a more humane disposition among the people, by strongly reprobating the effusion of blood, or depriving any being of existence; and these prejudices were admirably sustained by the doctrine of transmigration.—

Hence drew th' enlightened sage the moral plan  
That man should ever be the friend of man—  
Should view with tenderness all living forms,  
His brother-emmetts, and his sister-worms!

But, whatever might have been the medical objections of BRAHMA to carnivorous banquets, certain it is, that a race of what now may come under the denomination of "*natives*," (the Mahomedans) amounting to,

perhaps, a seventh or eighth of the whole population, make no scruple of indulging freely in most kinds of animal food:—who, in the face of the shuddering Hindoo, will sacrilegiously slay and eat that great Indian deity, the *cow*; and who, in their turn, look with perfect abhorrence on the polluted Englishman, who regales himself—not, indeed, on four-footed deity, but, in the Mussulman's opinion, with worse than cannibalism, or devil incarnate—PORK!

— Mox et *firefiutia* ponunt,  
 Nec distare putant *humana carne suillam*,  
 Qua puter abstinuit. — Juv.

Yet Hindoo, Mahomedan, and European—at least, the two first, while *moderation* is observed in their respective meals, enjoy equal health, and attain equal longevity.

So Heaven has formed us to the general taste  
 Of all its gifts, so custom has improved  
 This bent of nature, that few simple foods,  
 Of all that earth, or air, or ocean yield,  
 But by *excess* offend. —

Yet, if we critically examine the different casts, or rather classes of society, in India, we shall find that their physical powers and appearances are considerably modified by their manner of living. Nothing strikes the stranger with greater astonishment, than the personal contrast between the rich and the poor! Almost the whole of the upper classes are absolutely FALSSAFFS; and often have I been puzzled to know how some of them could stow themselves away in a palankeen, and

still more so, how their bearers could trot along under the pressure of such human porpoises! The truth is, that the Hisdostanee fops, (and most of the superior orders are such) pride themselves, above all things, on rotundity of corporation, and particularly on the *magnitude of their heads*.

To acquire such elegant distinctions, one would be tempted to suspect, that they occasionally broke the vegetable *regime*, and indulged in better fare than BRAHMA thought proper to prescribe. But no; all is accomplished by *ghee* and indolence! Of the former, which is a kind of semi-liquid butter, made by evaporating the aqueous part from the rich milk of the buffalo, they will swallow immense quantities; and whatever we may hear, from fireside travellers, of Hindoo temperance and abstemiousness, these gentry contrive to become as *bilious*, occasionally, as their European neighbours, and manage to curtail the natural period of their existence full as efficaciously, as their brother "*gourmands*" on this side of the water—making their exits, too, by the same short routes of apoplexy, and other fashionable near-cuts to heaven.

The lower or industrious classes, on the other hand, who live almost exclusively on vegetables, certainly bear a striking resemblance to "*Pharaoh's lean-fleshed kine*." But although they have not the physical strength of an European, they make up for this, in what may be termed "*bottom*;" for it is well known, that a native will go through three times as much fatigue, under a burning sky, as would kill an Englishman outright—

witness the palankeen bearers, coolies, dandies, hir-carrahs, &c. Nor is temperance always a prominent feature in the character of these gentry; for, what with bang, toddy, arrack, opium, and other inebriating materials, which all countries produce in some shape or other, and which all nations have shewn their ingenuity in manufacturing, they not seldom "muddle their brains," with as much glee as the same description of people in our own latitudes. Those, on the other hand, who, from local situation, poverty, or principle, adhere to the dictates of their religion and cast with great pertinacity, and seldom admit animal food within the circle of their repast (milk excepted), are certainly exempted from numerous ills that await our and their countrymen, who transgress the rules of temperance. Yet, when they are overtaken by disease, they have not *stamina*, and debility characterises the symptoms. Upon the whole, I am inclined to think that, taking the average longevity of all ranks and classes throughout the vast oriental peninsula, the period of human life falls a full *eighth* short of its European range. But as this does not quadrate with the opinions of speculative philosophers at home, who *will* equalize the age of man all over the world, I shall cite the authority of a very intelligent officer, whom I have so often quoted before, and who had some twenty years' acquaintance with the country in question. "Longevity," says he "certainly is not characteristic of India. Whether this is owing to the excessive heat, or the indolence of the upper and drudgery of the lower classes, it may be difficult to de-

cide; but certain it is, that we rarely see an instance of any one arriving at sixty years of age."\*

From indigenous customs, then, in respect to animal and vegetable food, we can draw no inference that absolutely prohibits the *former*, but enough to convince us, that during the first years of our sojourn between the tropics, we should lean towards the Hindoo model; and as the tone of the constitution becomes lowered, or assimilated, we may safely adopt the Mahomedan manners.

The period of our meals, in hot climates, indeed in all climates, is worthy of notice. Both Hindoo and Mahomedan breakfast early—generally about sunrise. Their early hours cannot be too closely imitated by Europeans. This is a very substantial meal, particularly with the Hindoo; for rarely does he take any thing else till the evening; a custom, in my opinion that would be very prejudicial to Europeans. Breakfasts, among the latter, are often productive of more injury than dinners, especially where fish, eggs, ham, &c. are devoured without mercy, as not unfrequently happens. Many a nauseous dose of medicine have I been obliged to swallow, from indulging too freely in these articles; but I saw my error before it was too late. Most people suppose, that as a good appetite in the morning is a sign of health, so they cannot do sufficient honor to the breakfast table; but the stomach, though it may relish, is seldom equal to the digestion of such alimentary substances as those alluded to, where a sound night's rest has hardly ever been procured. I have seen the most

\* Oriental Field Sports, vol. 1, p. 236.

unequivocal bad effects from heavy breakfasts, in others, as well as in my own person; and I shall relate one instance, that may well serve as a drawback on the pleasures of a luxurious *dejeunee* in the East. Mr. B——, Purser of a frigate, a gentleman well known on the station, was as determined a *bon-vivant* as ever I had the honor of being acquainted with.—“*De mortuis nil nisi verum.*”—He certainly had possessed a most excellent constitution; for I have seen it perform prodigies, and falsify the most confident medical prognostications! He had served many years in the West Indies, where he passed through the usual ordeals of yellow fever, dysentery, &c. with *eclat*; and he came to the East, with the most sovereign contempt for every maxim of the hygeian goddess! Although he never neglected, even by accident, his daily and nightly libations to the rosy god, yet no sportsman on the Caledonian mountains, could do more justice to a Highland breakfast than he. Indeed he rarely went to sea, without an ample private stock of epicurean provender; and I have seen him thrown into a violent paroxysm of rage, on finding that two nice-looking hams, which he had purchased in China, resisted all attacks of the knife, in consequence of a certain *ligneous* principle, which “*FUKKI*” had contrived to substitute, with admirable dexterity, for the more savoury fibres of the porker! The items of the *last* breakfast which he made, minuted on the spot by a *German* surgeon, who attended him, are now before me. The prominent articles were, four hard-boiled eggs, two dried fishes, two plates of rice, with

chillies, condiments, and a proportionate allowance of bread, butter, coffee, &c. Many a time had I seen him indulge in this kind of fare with perfect impunity; but all things have an end, and this proved his final breakfast! He was almost immediately taken ill, and continued several days in the greatest agony imaginable!

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Sed illum  
Dolorem peperet cibus imperfectus et hærens  
Ardenti stomacho!

Notwithstanding all the efforts of the surgeon, no passage downwards could ever be procured till a few hours before his death, when mortification relaxed all strictures!! Let the fate of the dead prove a warning to the living!

The newly arrived European should content himself with plain breakfasts of bread and butter, with tea or coffee; and avoid indulging in meat, fish, eggs, or buttered toast. The latter often occasions rancidity, with nausea at the stomach, and increases the secretion of bile, already in excess. Indeed a glance at master *Babachee*, buttering our toast with the greasy wing of a fowl, or an old, dirty piece of rag, will have more effect in restraining the consumption of this article, than any didactic precept which I can lay down; and a picturesque sight of this kind may be procured any morning, by taking a stroll in the purlieus of the kitchen.

In regard to dinner, Europeans appear of late to study convenience rather than health, by deferring that meal till sunset. This was not the case some twenty or

thirty years ago; and many families, even now, dine at a much earlier hour, except when tyrant custom and ceremony prevent them. In truth the modern dinner in India is perfectly superfluous, and too generally hurtful. The *tiffin*, at one o'clock, consisting of light curries, or the like, with a glass or two of wine, and some fruit, is a natural, a necessary, and a salutary repast. But the gorgeous table—the savoury viands—the stimulating wines of the evening feast, prolonged by the fascination of social converse, greatly exacerbate the nocturnal paroxysm of fever imposed on us by the hand of nature, and break with feverish dreams, the hours which should be dedicated to repose! The consequences resulting from this are quite obvious. It may be observed, that the natives themselves make their principal meal at sunset, when the heat is less distressing, and insects neither so numerous nor teasing; but it must be recollected, that they, in general, eat nothing between breakfast and dinner; and that among the Hindoos and lower classes of Mahomedans, &c. the evening meal is by no means of a stimulating quality, while no provocative variety, or other adventitious circumstances, can have much effect in goading the appetite beyond its natural level. Add to this, that in the upper provinces, among Mahomedans of distinction, who can afford more substantial, and animal food, the dinner hour is *one or two o'clock*, and after that, little or nothing, except coffee, sweatmeats or fruit, is taken during the evening.

He, then, who consults his health in the Eastern

world, or in any tropical climate, will beware of indulging in this *second* and *unnecessary* dinner, particularly during the period of his probation; but will rather be satisfied with the meridian repast, as the *principal* meal, when tea or coffee, at six or seven o'clock in the evening, will be found a grateful refreshment. After this, his rest will be as natural and refreshing, as can be expected in such a climate; and he will rise next morning with infinitely more vigour, than if he had crowned a sumptuous dinner with a bottle of wine the preceding evening. Let but a trial one week put these directions to the test, and they will be found to have a more substantial foundation than *theory*.

Of supper it is not necessary to speak, as it is a mere matter of ceremony in hot climates, excepting after assemblies, or on some public occasions, which indeed are badly suited to the torrid zone.

A limited indulgence in fruits, during the first year, is prudent. Although I myself never had any reason to believe that they actually occasioned dysentery, yet, where the intestines are *already* in an irritable state, from irregular or vitiated secretions of bile, they certainly tend to increase that irritability, and consequently *predispose* to the complaint in question. Particular kinds of fruit, too, have peculiar effects on certain constitutions. Thus, *mangoes* have something stimulating and heating in them, of a terebinthinate nature, which not seldom brings out a plentiful crop of pustules, or even boils, on the unseasoned European. A patient of mine, who died from the irritation of an eruption of this

kind, had been much addicted to an unrestrained indulgence in fruit, particularly mangoes;—indeed their effect in this way is familiarly known in India. Neither is pine-apple (though very delicious) the safest fruit to make too free with, at first. Good ripe shaddocks are very grateful in hot weather, from their subacid and cooling juice, so well adapted to allay the unpleasant sensation of thirst. Plantains and bananas are wholesome and nutritious, especially when frittered. The spices and condiments of the country, as I before hinted, should be reserved for those ulterior periods of our residence in hot climates, when the tone of the constitution is lowered, and the stomach participates in the general relaxation. They are then safe and salutary.

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## DRINK.

Sævientia guttura satiare non possunt fluvia et Maria.  
*Anras Sylvius.*

SEC. III.—I shall not here attempt to prove, that *water* is the simple and salutary beverage designed by nature for man, as well as other animals. In every nation, even the most refined and modern, a great majority appear, by their practice at least, to entertain no such belief. They have, with no small ingenuity, contrived so to medicate the native fountain, that they are always either outstripping, or lagging behind, the placid stream of life! The same magic bowl which, this moment,

“Can pour remotest rapture on the sight.”

and raise its votaries into heroes and demi-gods, will, in a few hours, sink them beneath the level of the brute creation!!

Instant her circling wand the goddess waves,  
To hogs transforms them, and the sty receives!  
No more is seen the human face divine,  
Head, face, and members, bristle into swine !

The moralist and philosopher, have long descanted on this theme, with little success; for, until people begin to feel the corporeal effects of intemperance, a deaf ear is turned to the most impressive harangues against that deplorable propensity; and even then, but very few have resolution and fortitude to stem the evil habit! Let us do our duty, however, in conscientiously portraying the effects of drink in a tropical climate.

I have already observed, that the grand secret, or fundamental rule, for preserving health in hot countries, is, "*to keep the body cool.*" I have also alluded to the strong sympathy that subsists between the skin and several internal organs, as the stomach, liver, and intestinal canal. On this principle, common sense alone would point out the propriety of avoiding heating and stimulating drink, for the same reasons that we endeavour to guard against the high temperature of the climate. But no; a wretched, sensual theory has spread from the vulgar to many in the profession (who ought to know better) that since the heat of the climate occasions a profuse perspiration, and consequently renders that discharge the more liable to a sudden

check, we are to aid and assist these natural causes by the use of “gently stimulating liquids,” and, of course, increase those very effects which we pretend to obviate! “A little shrub and water,” says Mr. Curtis, (Diseases of India) “or madeira and water, *between meals*, is useful, and in some measure *necessary*, to keep up the tone of the digestive organs, and to supply [i. e. augment] the waste occasioned by an excessive perspiration.” p. 281. I can assure Mr. Curtis that, however *necessary*, this practice might have been thought in his time (thirty years ago) it is *now* considered not only *unnecessary*, but disgraceful; and that in no respectable circle in the eastern world, beyond the confines of the “Punch-house,” where no European of character will ever be seen, [especially in Bengal] is any sangaree, porter-eup, or other “gently stimulating liquid,” made use of “between meals.” And I take this opportunity of informing and warning every *new-comer*, that the very call of “brandy-shrub-pauny!” will endanger his being marked as a *vitandus est*,” and that a perseverance in such habit will inevitably, and very quickly too, exclude him from every estimable circle of his own countrymen, who will not fail to note him as in the high road to ruin!

Nor did these most excellent habits of temperance originate in any medical precepts or admonitions—far from it! the professional adviser was by no means solicitous to inculcate a *doctrine*, which it might not suit his taste to *practise*. But in a vast empire, held by the frail tenure of opinion, and especially where the

current of religious prejudices, Brahmin as well as Moslem, ran strong against intoxication, it was soon found necessary, from imperious motives of policy, rather than of health, to discourage every *tendency* towards the acquisition of such dangerous habits. Hence the inebriate was justly considered as not merely culpable in destroying his own health, *individually*, but as deteriorating the European character in the eyes of those natives, whom it was desirable at all times to impress with a deep sense of our superiority. Happily, what was promotive of our *interest*, was preservative of our health, as well as conducive to our happiness; and the general temperance in this respect, which now characterises the Anglo-Asiatic circles of society, as contrasted with Anglo-West-Indian manners, must utterly confound those fine-spun theories, which the votaries of porter-eup, sangaree, and other "gently stimulating liquids," have invented about—"supporting perspiration," "keeping up the tone of the digestive organs," &c. all which, *experience* has proved to be not only *ideal*, but *pernicious*! "On the meeting together of a company of this class," [planters] says a modern writer on the West Indies, "they were accustomed invariably, to sit and continue swilling strong punch, (sometimes half rum) and smoking segars, till they could neither see nor stand; and he who could swallow the greatest quantity of this *liquid fire*, or infuse in it the greatest quantity of ardent spirits, was considered the cleverest fellow." *Account of Jamaica and its Inhabitants, 1808.*—p. 189. And again: "The infe-

rior orders, in the town, are by no means exempt from the reproach of intemperance; nor are the more *opulent classes*, generally speaking, *behind hand* in this respect. Sangaree, arrac-punch, and other potations, are pretty *freely drank, early in the day*, in the taverns.” —p. 199.

I can conceive only one plausible argument which the transatlantic Brunonian can adduce, in support of his doctrine after the unwelcome *denouement* which I have brought forward respecting oriental customs; namely, that as the range of atmospherical heat, in the West Indies, is several degrees *below* that of the East, it may be necessary to counterbalance this deficit of *external heat*, by the more assiduous application of *internal stimulus*!! For this hint he will, no doubt, be much obliged to me, as he must consider the argument irresistible.

I may here remark, that too much praise cannot be given to the captains of East Indiamen, for the lessons of temperance and decorum that are generally taught on board their ships (whatever may be the motives) during the outward bound passage. The very best effects result from this early initiatory discipline, in a thousand different ways. Rarely, indeed, in the vessels alluded to, does the decanter make more than half a dozen tours (often not so many) after the cloth is removed at dinner, before the company disperse, by a delicate, but well known signal, either to take the air upon deck, or amuse themselves with books—chess—music, or the like, till the evening. After a very frugal supper, the bottle makes a tour or two, when the significant toast.

of—" *Good night, ladies and gentlemen!*" sends every one, at an early hour, to repose.

It may readily be conceived, of what incalculable utility five or six months' *regimen* of this kind must prove to Europeans, approaching a tropical climate; especially when policy and imperious custom will enforce its continuance there! It is true, that at each of the presidencies, there may be found several individuals of the old bacchanalian school, whose wit, humour, or vocal powers, are sometimes courted, on particular occasions, to "set the table in a roar." But let not such expect to mingle in the *domestic* circles of respectable society (where alone true enjoyment is to be found) either in the civil or military departments. No such thing as a regimental mess exists in India; and as convivial association thus becomes perfectly optional, the least tendency to inebriety will assuredly *insulate* the individual who, from solitary indulgence and reflection, soon falls a martyr to the baneful effects of INTEMPE-  
RANCE!

Add, that your means, your health, your parts decay:  
Your friends avoid you; brutishly transform'd,  
They hardly know you; or; if one remains  
To wish you well—he wishes you in heaven !!

The navy presents a different aspect. Few of these have an opportunity of becoming acquainted with the domestic manners either of the natives or Europeans on shore; and therefore, they pursue their usual course of living, both in food and drink, for a considerable time

after arriving on the station; verifying the observation, that—

“ Cœlum non animum mutant qui transmare currunt.”

And although they are fortunately less exposed, in general, to many of those causes which aggravate the effects of inebrity ashore, yet much injury is produced before they see their error.

A very common opinion prevails, even in the profession—and I am not prepared to deny its validity, that during the operation of wine or spirits on the human frame, we are better able to resist the agency of certain morbid causes, as contagion, marsh effluvium, cold, &c. But, let it be remembered, that it is only while *the excitement* lasts, that we can hope for any superior degree of immunity from the said noxious agents; after which, we become doubly disposed towards their reception and operation! Nor am I fully convinced, by all the stories I have heard or read, that *inebriety* has, in any case or emergency, even a *memento* superiority over *habitual temperance*.

The delusion in respect to vinous and spiritous potations, in hot climates, is kept up chiefly by this circumstance, that their bad effects are, in reality, not so conspicuous as one would expect; and they rather predispose to, and aggravate the various causes of disease resulting from climate, than produce direct indisposition themselves; consequently, superficial observation places their effects to the account of other agents. But the truth is, that, as *drunkenness*, in a moral point of view,

leads to every vice; so, in a medical point of view, it accelerates the attack, and renders more difficult the cure of every disease, more particularly the diseases of hot climates; because it has a *specific* effect, I may say, on those organs, to which the deleterious influence of climate is peculiarly directed. If the northern inebriate is proverbially subject to hepatic derangement, where the coldness of the atmosphere powerfully counterpoises, by its action on the surface, the internal injury induced by strong drink, how can the Anglo-East or West-Indian expect to escape, when the external and internal causes run in perfect unison, and promote each other's effects by a wonderful sympathy?

It has been considered wise, as I before hinted, to take the seasoned European for our model, in every thing that respects our *regime* of the non-naturals.

“Strangers,” says Mr. Curtis, “arriving in India, if they regard the preservation of health, cannot too soon adopt the modes of living followed by the experienced European residents there.” I do not conceive this to be a good medical maxim, even in India, where temperance is scarcely a virtue; and certain I am, that it is a most dangerous precept in the West, for reasons which I have lately rendered sufficiently obvious. It confounds all discrimination between the very different habits of body, which the seasoned and unseasoned possess. It is consonant with experience, as well as theory, that the *former* class may indulge in the luxuries of the table, with infinitely less risk than the *latter*; and this should ever be held in view. In short, the nearer we approach

to a perfectly *aqueous* regimen in drink, during the first year at least, so much the better chance have we of avoiding sickness; and the more slowly and gradually we deviate from this afterwards, so much the more retentive will we be of that invaluable blessing—HEALTH!

It might appear very reasonable, that in a climate where *ennui* reigns triumphant, and an unaccountable langour pervades both mind and body, we should cheer our drooping spirits with the mirth-inspiring bowl.—

“ Boy, let yon *liquid ruby* flow,  
And bid thy *pensive heart* be glad,  
Whate’er the frowning zealots say:—  
Tell them, their *Eden* cannot shew  
A stream so clear as *Rocnabad*.”

But Hafiz, though an excellent poet, and, like his predecessor, Homer, a votary of Bacchus, was not much of a physician; and without doubt, this “ *liquid ruby*,” as he calls it, is one of the worst of all prescriptions for a “ *pensive heart*.” I remember a gentleman at Prince of Wales’s Island, [Mr. S.] some years ago, who was remarkable for his convivial talents and flow of spirits. The first time I happened to be in a large company with him, I attributed his animation and hilarity to the wine, and expected to see them flag, as is usual, when the first effects of the bottle were past off; but I was surprised to find them maintain a uniform level, after many younger heroes had bowed to the rosy god. I now contrived to get near him, and enter into conversation, when he disclosed the secret, by assuring me he had drunk nothing but water for many years in India; that in consequence,

his health was excellent—his spirits free—his mental faculties unclouded, although far advanced on time's list: in short, that he could conscientiously recommend the “*antediluvian*” beverage, as he termed it, to every one that sojourned in a tropical climate.

But I am not so *utopian*, as to expect that this salutary example will be generally followed; though it may lead a few to imitate it, till the constitution is naturalized, when the *pleasures of temperance* may probably induce them to persevere. At all events, the new-comer should never exceed three or four glasses of wine after dinner, or, on any account admit it to his lips between meals, unless excessive fatigue and thirst rendered drink indispensable, when cold water might be injurious. Spirits, of course, should be utterly proscribed.

One circumstance, however, should always be kept in mind, to wit, that when a course of temperance is fully entered on, no consideration should induce us to commit an occasional debauch, especially during our seasoning; for we are at those times in infinitely greater danger of endemic attacks, than the habitual bacchanal.

It has been remarked, by many sensible observers, that *acids* are injurious to the stomach and bowels, between the tropics. I will not contradict though I cannot confirm this observation. I never saw any bad effects myself from their use; and I knew some medical gentlemen, long resident in India, who drank very freely of sherbet, at all times when thirst was troublesome. Nature seems to point out the vegetable acids, in hot climates, as grateful in allaying drought and dif-

fusing a coolness from the stomach all over the body. It is very probable, however, that where the alimentary canal is in an irritable state, they may excite diarrhœa; and this last frequently leads to more serious disturbance in the functions of the digestive organs. Where the tone of the stomach, too, is weak, (as is often the case) and that organ is disposed to generate acidity, the acids in question may readily prove injurious.

It has also been said, that a too free use of cocoa-nut water, or milk, as it is sometimes called, has produced bowel complaints. My own observations are not in unison with this remark. It was my favourite beverage, and never did I feel in my own person, or perceive in others the slightest inconvenience from indulging in this most delicious liquid. It ought, however, to be fresh drawn, limpid, sweet, and never drunk after the deposit on the inside of the shell begins to assume the form of a consistent crust.

I have alluded to the danger of drinking cold fluids when the body is heated, and particularly where perspiration has continued profuse for any time. I could furnish many instances, illustrative of this position, but shall only adduce the following:—

Lieutenant Britton, of the Royal Marines, (at that time belonging to his Majesty's ship *Grampus*) a very fine young gentleman, had heated and fatigued himself, by driving about the streets and bazars of Calcutta, in the autumn of 1803, in which state, he had the imprudence to swallow an ice-cream, for the purpose of allaying his thirst. Of the effects of this he died, a few

weeks afterwards, on his passage to Madras, under my own care. It brought on inflammation about the fauces, which subsequently spread down along the membrane lining the trachea, to the lungs, producing symptoms exactly resembling croup. He died in dreadful agonies, flying from one part of the ship to another, for relief from the dyspnœa and oppression on his chest. Various remedies were tried, but all in vain.—Let this prove a caution to the living! “The danger, says Dr. Dewar, of drinking cold water in that state of the system, was most striking when a copious draught was quickly taken after extraordinary heat and fatigue. An acute pain was instantly produced in the stomach, and rapidly extended through the rest of the body which threatened to over-power the whole vigour of the frame.” *On Dysentery*, p. 50. A navy surgeon died at Marmoice in Asia Minor, after a very short illness contracted by taking a draught of cold water in a hot state of body. For numerous examples of a similar nature, see Currie’s *Medical Reports*.

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### EXERCISE, &c.

SEC. IV.—This is one of the luxuries of a northern climate, to which we must, in a great measure, bid adieu, between the tropics. The principal object and effect of exercise in the *former* situation, appear to consist in keeping up a proper balance in the circulation—in supporting the functions of the skin, and promoting

various secretions. But perspiration and certain secretions (the biliary, for instance) being in excess, in equatorial regions, *a perseverance* in our customary European exercises, would prove highly injurious, and often does so, by greatly aggravating the natural effects of climate. Nevertheless, as this *excess* very soon leads to debility and *diminished action*, in the functions alluded to, with a corresponding *inequilibrium* of the blood, so it is necessary to counteract these, by such active or passive exercise as the climate will admit, *at particular periods of the day or year*; a discrimination imperiously demanded, if we mean to preserve our health. Thus, when—

— — — — vertical the sun  
Darts on the head direct his forceful rays,

for several hours in the day, on the plains of India, not a leaf is seen to move—every animated being retreats under cover—and even the “*adjutant*” [gigantic crane] of Bengal, whose stomach will bear an ounce of emetic tartar without complaining, soars out of the reach of the earth’s reflected heat, and either perches on the highest pinnacle of lofty buildings, or hovers in the upper regions of the air, a scarcely discernible speck.

— — — — Now, while the blood  
Too much already maddens in their veins,  
And all the finer fluids through the skin  
Explore their flight,

the peaceful Hindoo retires, as it were instinctively, to the innermost apartment of his humble shed, where both light and heat are excluded. There he sits qui-

etly, in the midst of his family, regaling himself with cold water or sherbet, while a mild, but pretty copious perspiration, flows from every pore, and contributes powerfully to his refrigeration.\*

As soon as the cool of the evening, however commences, all Nature becomes suddenly renovated, and both men and animals swarm in myriads from their respective haunts! Then it is, that the esplanade at Calcutta, and the Mount road near Madras, pour on the astonished eye of the stranger, a vast assemblage of all nations, casts, and complexions, comprehending an endless and unequalled variety of costume and character, hurrying to and fro, in all kinds of vehicles as well as on foot, enjoying the refreshing air of the evening! The same scene is witnessed early in the morning, particularly during the cool season, in Bengal; but in the rainy season there, and while the hot land-winds prevail on the Coromandel coast, the life of an European is irksome to the last degree! Perspiration being then profuse, the most trifling exertion is followed by languor and lassitude. Cooped up behind a *tatty*, or lolling about under a *punka*, he can neither amuse his mind nor exercise his body, and *tedium vita*, reigns uncontrolled during these gloomy periods! It need hardly be urged, how injurious active exercises would be to Europeans, at such times; or indeed, during the heat of the day, at any time; yet hundreds annu-

\* What with the smoke of the house [for there is no chimney] and the oil on his skin, a native is hardly ever annoyed by mosquitoes, as foreigners are.

ally perish from this very cause; particularly in the West Indies, after each influx of Europeans during war!

Who would expect to find *dancing* a prominent amusement in a tropical climate? The natives of the West Indies are excessively fond of this exercise; but in the East there are *wise men* still, for instead of dancing themselves they employ the *nautch-girls*, whose *principal* business consists in

“*Gayly tripping as they go  
On the light fantastic toe.*”

It might seem ill-natured if I animadverted on the custom of my fair countrywomen, who *shew off* with such eclat, at the *Pantheon* near Madras, regardless of all thermometrical indications. The practice is not *salutary* however *politic* it may be found—and it certainly does not *appear* to agree so well with *married* ladies as with *virgins*, whatever may be the reason.

I have shewn that the range of atmospherical heat is considerably higher in the East than in the West, and that in the latter part of the world they are exempted from hot land-winds, and more favoured with cool sea-breezes, than the inhabitants of the former. Still, Europeans, although they may not enjoy better health, experience infinitely less mortality in the peninsula of India, than in the West Indian Archipelago. If a thousand European troops, for instance, are debarked at Kingston, Jamaica, and an equal number at Madras, at the same time, we shall find the former lose, in all probability, one-third—perhaps one-half their number,

during the first eighteen months: while the other corps will not lose more than a thirtieth or a fortieth part of their total in the same period. But if we examine the two bodies of men at the end of five or six years, we shall not find the same disproportion. Hepatic and dysenteric complaints, by that time, will have brought the Eastern corps somewhat nearer a *par* with their Western countrymen. The great *onus* of disease bears on the *first year* of a European's residence in the West Indies, because that is the period within which the endemic or yellow fever makes its attack; after which, he feels the effects of climate in a more moderate degree. In the East, fever (excepting in Bengal) is by no means general; and the first year is not distinguished by mortality. But the climate being much hotter, and the atmospherical vicissitudes more sudden and extensive, each subsequent year produces great mischief in important organs; and the wonder is, why he does not suffer infinitely more than the Anglo-West Indian!

I have already adduced several causes for this disparity; one, the greater length of an East India voyage, with its concomitant abstemious regime, the reverse of which so much predisposes to the violent assaults of the Western endemic. Another, is the laudable temperance and decorum, prescribed by general custom in the Eastern world, obviating, in no slight degree, the deleterious influence of climate. I shall now proceed to make some observations on other differences in the mode of life, and means of preserving health in the two countries, as elucidatory of this sub-

ject, hoping that the interest and utility of the discussion will sufficiently excuse its informal position in this section.

First, then, the *Houses* of the East, whether permanent mansions or temporary *bungalows*, are better calculated for counteracting the heat of the atmosphere than those of the West. As there is no dread of earthquakes or hurricanes, in the former place, the dwellings are *solid*—the apartments *lofty*—the windows large, and the floors, in general, composed of *tarras*, which, being often sprinkled with water, is cool to the feet, and diffuses agreeable an refrigeration through the room. Add to this, that the spacious *verendahs* ward off the glare of the sun, and *reflected* heat, (an important consideration) by day, and afford a most pleasant retreat in the evening, for enjoying the cool air. The *tatties*, which are affixed to the doors and other apertures, in the hot season, and kept constantly wet by *bheesties*, or water-carriers, whereby the breeze is cooled by evaporation, in its passage through the humid grass, of which the tatty is constructed, prove a very salutary and grateful defence against the hot land-winds; since this simple expedient makes a difference of twenty or thirty degrees, between the *bheesty's* and the *Europeans* side of the *tatty*! It appears, however, that in the East we have not been sufficiently attentive to the prevention of *reflected heat and glare*; a circumstance of infinitely greater consequence than the freest ventilation. Let us learn from the native. His habitation has very few apertures, and those high up. His floor, and the inside of the

walls, are moistened two or three times a-day, with a solution of cow-dung in water, which, however disagreeable to the olfactories of an European, keeps the interior of the dwelling as cool as it is dark. Here he sits on his mat, enjoying his aqueous, but salutary beverage; and with such simple means and materials, counteracts the heat of the climate more effectually than the Europeans, in his superb and costly edifice. "Those who live in houses," says Dr. Winterbottom, "the walls of which are plastered with mud, frequently, during the continuance of hot weather, wet the walls and floor, to cool the air: this is a very hurtful practice, as it renders the air moist, and brings it nearly into the state it is in during the rainy seasons."—On Hot Climates, p. 16. This, like many other observations founded on contracted views, and favourite theories, is completely contradicted by the broad basis of facts. It reminds us of a passage in Dr. Robertson's third volume on the Diseases of Seamen, where he undertakes to prove, that it is the moisture of the air over marshes that causes disease; and, in short, questions whether miasma ever produced fever—*except on board the WEAZLE sloop of war, when he was surgeon of her, on the coast of Africa!!*

The upper classes of natives, also, have not been inattentive to the prevention of reflected heat. The houses of Benares, for instance, are of solid stone and generally six stories high, with small windows. The streets are so extremely narrow, that the sun has very little access to them; obviating thereby the disagreea-

ble effects of glare. The windows are small, because, from the height of the houses, it would be impracticable to apply tatties during the hot winds; whereas, in low country-houses, or bungalows, they are large, in order to extend the refrigerating influence of the tatties.

The dazzling whiteness of European houses in India, is not only inconvenient, but in some degree injurious, to the eyes, at least; and a verendah, entirely encompassing the mansion, would contribute greatly to the refrigeration of the interior apartments; the most comfortable of which, by the by, on the ground floor, used to be appropriated to the use of palankeens and lumber, but are now wisely converted into offices, &c.

The *punka*, suspended from the lofty ceilings of the eastern rooms, and kept waving overhead, especially during our repasts, is a very necessary piece of what may be fastidiously styled “*Asiatic luxury.*” Indeed, were it not for this and the *tatty*, some parts of India would be scarcely habitable by Europeans, at certain seasons.

It is observed, in a recent “*account of Jamaica,*” by a gentleman long resident there, that the “*Asiatic effeminacy*” of being carried about in a palankeen, has not yet reached the West Indies. It would be well if several other Asiatic effeminancies [temperance, for example] were more generally adopted in the transatlantic islands. But that the Anglo-West Indian rejects this luxurious vehicle, *merely* through any scruple respecting its *effeminacy*, is rather too much for credence. If a dozen of sturdy *balasore-bearers* could be

hired in Jamaica for the trifling sum of four or five shillings a-day, including all expences, the western nabob and nabobess would soon condescend to recline in their palankeens, with as much state as their "effeminate," bretthren of the East. But the plain reason is, that neither the country itself nor its *imported* population will admit of a conveyance, which is cheap, elegant, and convenient, on the sultry plains of India.\*

Gestation in a palankeen, however, is a species of passive exercise exceedingly well adapted to a tropical climate. The languid circulation of the blood in those who have been long resident there, is pointedly evinced by the inclination which every one feels for raising the lower extremities on a parallel with the body, when at rest; and this object is completely attained in the palankeen, which indeed renders it a peculiarly agreeable vehicle. On the same principle we may explain the pleasure and the utility of *shampooing*, where the gentle pressure and friction of a soft hand, over the surface of the body, but particularly the limbs, invigorate the circulation after fatigue, and excite the insensible cuticular secretion. I much wonder that the *swing* is not more used between the tropics. In chronic derangements of the viscera, it must be salutary, by its tendency to determine to the surface, and relax the sub-cutaneous vessels, which are generally

\* Checks of *kuss-kuss*, sort of glass which the *tatties* are made, being affixed to the doors of palankeens, and kept moist, enable Europeans to travel during the hottest weather. A wet *palampore*, or covering of calico, is a tolerable substitute.

torpid in those diseases. It might be practised in evenings and mornings—and within doors, when the state of the weather, or other circumstances, did not permit gestation, or active exercise in the open air.

A propensity towards *smoaking* would not be expected, *a priori*, in a tropical climate. Yet the practice is very general among Europeans and natives, and seems to spring from that listlessness and want of mental energy, so predominant in the character both of sojourners and permanent inhabitants of sultry latitudes. As the custom may not be insalutary at certain seasons of the year, in particular places, where marshy or other deleterious exhalations abound; and as it is often a succedaneum for more dangerous indulgences, it is best, perhaps, to pass it over with little comment. Yet it has ever appeared to me a degrading habit, for a gentleman to become a *slave* to his hookah; and it is beyond endurance, to see a great lusty *hook-burdaar*, insinuate the pipe of his long *snake* into the delicate hand of an European lady, after dinner, who plies the machine with as much glee, as the sable and subordinate nymph of the country does her *nercaul!* For the honour and delicacy of the sex, this practice is by no means common; and the wonder is, that it ever should have existed.

In the article of *dress*, the Anglo-East Indians have a manifest advantage over those of the west. The delicious and salutary beverage of *cool drink*, too, is more in use among the former than the latter; partly owing to custom, and partly to opulence, which enables all

ranks of Europeans to have their wine, water, &c. refrigerated with salt-petre, by a particular servant, set apart for that sole purpose, and called in Bengal—*Aubdaar*. The effect of these gelid potations on the stomach is diffused from thence, by sympathy, over the whole frame, but especially over the external surface of the body, counteracting, in no mean degree, the natural influence of the climate. It is true, the bottles are brought on table, in the West Indies, enveloped in wetted napkins; but the effect is far inferior to that produced by the nitrous solution; and as the aubdaar's art is extended to all kinds of drink, this grateful luxury is ever at hand.

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## BATHING.

SEC. V.—“I dare not,” says Dr. Moseley, “recommend cold bathing; [in the West Indies] it is death with intemperance, and dangerous where there is any fault in the viscera. It is a luxury denied to *almost all*, except the sober and abstemious females, who well know the delight and advantage of it.”—3d. ed. p. 90. In respect to its being “death with intemperance,” I believe that numerous inebriates could tell the doctor a different story; but, as it is presumed he never deigns to look into a modern author, he is unacquainted with varions facts that militate against his dogma. The well-known instance of Mr. Weeks of Jamaica, who always went to sleep in cold water, when intoxicated, is

sufficiently in point. Many a time have I seen it bring the drunken sailor to his senses at once; and *invariably* have I observed it to moderate the excitement of spirituous potations. I knew a gentleman who always went to sleep with his head on a *wet swab*, whenever he had taken a good "*mosquito dose*;" and the consequence was, that he very seldom complained of head-ache next day. It is true, that if the cold bath be injudiciously used, during the indirect debility *succeeding* a debauch, there may not be sufficient energy in the constitution to bring on re-action; and then, of course, it would be injurious. But this is a discrimination to which the genius of a Moseley could not stoop. Granting, however, "what is certainly true, that the cold bath is dangerous, where visceral obstructions obtain, I cannot conceive why it should be denied to *almost all*, except females, in hot climates; unless we take those visceral derangements with us from Europe. Surely we might be allowed "*the delight and advantage*" of it, till these disordered states occur!

But whatever miserable *theory* may have discouraged bathing, and recommended the use of "*gently stimulating liquids*," in the West; wide *experience* has completely settled these points, long ago, in the East. There the Native and European—the old and the young—the male and the female, resort to the BATH, as the greatest luxury, and the best preservative of health. In truth, it is one of the most powerful engines we possess, for counteracting the destructive influence of a hot climate, because it connects the most

grateful sensations with the most salutary effects—it is indeed both *utile et dulce*.

Nature, or instinct itself, points out the external application of cold water to the body, to moderate the action of atmospheric heat. The buffalo is a familiar example. In the middle or hot period of the day, these animals repair to pools or marshes, and, wading in, either stand or lie down there, with every part except the nose immersed in water; or, where there is not water, in the mud. At these times, by the by, it is very dangerous for Europeans to approach their haunts. They generally start up all at once, on being disturbed; and if one or two begin to snort and advance, the European is in imminent peril: nothing but the most rapid retreat to a place of safety, can secure his life! A red coat is a very unfortunate dress at such critical rencontres, as the animals in question have a decided antipathy to that colour.

It requires but little penetration to see, that the Brahminical injunctions, relating to ablutions, were founded on the preservation of *present* health to the body; though the *future* happiness of the soul was artfully held out as a superior inducement to the performance of these ceremonies so necessary beneath a burning sky. The superstitious Hindoo rarely omits bathing, once or oftener, every day, in the sacred stream of the Ganges [or other consecrated river,] from which he is not deterred even by the voracious alligator, who frequently carries him off in the religious act! He generally wades out to a moderate depth—then, shutting his

eyes, and putting his fingers in his ears, he squats himself under water two or three times—washes his *doty*—and returns cool and contented, to his humble cot.

The Europeans and upper classes of Mahomedans, however, feeling no great desire for risking *tete-a-tetes* with sharks or alligators, are, in general, satisfied with a few pots of cold water thrown over their heads at home, once, twice or oftener, every day, according to the season of the year, and the persons own inclinations. This, being unattended either with fatigue or expence, is well adapted to all circumstances and situations, and answers the end in view effectually enough.

I have shewn, in various parts of this essay, that most of the diseases of tropical climates are attributable to *atmospherical vicissitudes*. Now, there is nothing that steels the human frame, with more certainty, against the effects of these, than the cold bath. We are the very creatures of habit; and consequently, *habituation* is the surest prophylactic. The cold bath not only counteracts the influence of heat, by suspending its operation for the time, but it safely inures us to the sudden application of cold, the fruitful source of so many disorders. By keeping the skin clear, cool, and soft, it moderates excessive, and supports a natural and equable cuticular discharge; and from the “*cutaneo-hepatic sympathy*,” so often noticed, the functions of the liver partake of this salutary equilibrium—a circumstance hitherto overlooked. The use of the *cold bath*, then should be regularly and daily persevered in, from the moment we enter the tropics; and when, from

long residence there, the functions above alluded to begin to be irregular and defective, instead of in excess, we may prudently veer round, by degrees, to the *tepid bath*, which will be found a most valuable part of Tropical Hygiene among the *seasoned* Europeans.

As the cold bath is passive (for it is seldom that the exhausting exertion of swimming accompanies it) so it may be used at any period of the day; though the mornings and evenings are generally selected by Europeans in the East; immediately after leaving their couch, and before dinner. The bath is very refreshing, when we rise unrecruited from a bad night's rest; and powerfully obviates the train of nervous symptoms, so universally complained of by our countrymen between the tropics. Before dinner it is salutary, apparently from that connexion which subsists between the external surface and the stomach, in consequence of which the tone of the latter is increased, and the disagreeable sensation of thirst removed, that might otherwise induce to too much potation during the repast. It is, however, imprudent to bathe while the process of digestion, is going on in the stomach, as it disturbs that important operation. Where visceral derangements of any extent, particularly in the liver, have taken place, the cold bath must be hazardous, from the sudden afflux of blood directed from the surface to the interior, and also on account of the subsequent vascular re-action. The tepid bath, taking care to avoid a chill afterwards, will, in these cases, be substituted with great advantage.

## SLEEP.

“Tir’d Nature’s sweet restorer, balmy sleep!”  
YOUNG.

SEC. VI.—When we bid adieu to the temperate skies of Europe, with all its

“Long nights of revelry and ease,”

and enter the tropics, particularly in the Eastern hemisphere, we may calculate on a great falling off in this “solace of our woes.” The disturbed repose, which we almost always experience there, has a greater influence on our constitutions than is generally imagined, notwithstanding the silence of authors on this subject. Nature will not be cozened with impunity. Whatever we detract from the period of our natural sleep, will assuredly be deducted in the end, from the natural range of our existence, independently of the predisposition to disease, which is thus perpetually generated. This is a melancholy reflection; but it is truth, and it should induce us to exert our rational faculties in obviating the evil.

When the sun withdraws his beams, and the intense heat of the atmosphere is mitigated, we might expect a comfortable interval of repose—but this would be a vain hope. A new host of foes instantly appear in arms to annoy us! Mosquitoes, ants, and cock-roaches, lead on the insect tribes—the bat wheels in aerial circuits over our heads, on which he sometimes condescends to alight, without ceremony—while the snake patroles about, in

the purlieus of our apartment; coils himself up under our beds, or even deigns to become our *bedfellow* without waiting the formality of an invitation ?\*

The great object of a European is to *sleep cool*. This enables him to procure more rest than he otherwise could do; and, by giving his frame a respite, as it were, from the great stimulus of heat, imparts to it a tone and vigour—or as Dr. Darwin would say, “an accumulation of excitability,” so necessary to meet the exhaustion of the ensuing day, as well as to repair that of the preceding.

A great waste of strength—indeed, of life, arises from our inability, on many accounts, to obtain this *cool* repose at night. Thus rains, heavy dews, or exhalations from contiguous marshes, woods or jungles, often render it unsafe or impossible to *sleep in the open air*; a practice fraught with the most beneficial consequences, where the above-mentioned obstacles do not prevent its execution. But, pending the hot and dry season in Bengal, and almost always on the Coromandel coast, except during the hot land-winds, or at the change of the monsoons, we may indulge, not only with safety, but with infinite advantage, in the seemingly dangerous luxury of sleeping abroad in the open air.

\* Many instances have occurred of snakes being found coiled away between children in bed. It is said, that if a chafing-dish, filled with clear, live embers, be quickly placed on the floor of a room, in such emergency, the reptiles will repair to it; especially if some new milk be also left near the chafing dish.—Great presence of mind is here necessary, in order not to disturb those dangerous creatures suddenly in their retreat.

I am well aware of the prejudices entertained against this custom, by great numbers, both in and out of the profession; but I am convinced, from personal experience and observation, that the practice, under the specified restrictions, is highly salutary, and I know it is sanctioned by some of the best-informed veterans, who have spent most part of their lives between the tropics. Speaking on this subject, the judicious Captain Williamson remarks that—"few, very few instances could be adduced, of any serious indisposition having attended it; while, on the other hand, it is confessed by all who have adopted it, that the greatest refreshment has ever resulted; enabling them to rise early, divested of that most distressing lassitude, attendant upon sleeping in an apartment absolutely communicating a febrile sensation, and peculiarly oppressive to the lungs."—*East India Vade-Mecum.*

If it be observed, that I have all along held up to view the danger of atmospherical vicissitudes, to which this practice would *apparently* expose us; I answer; that I have also maintained, that *early habituation* to these was the surest preservative against their injurious effects, as exemplified in the use of the bath. The truth is, however, that while the custom of sleeping in the open air steels the human frame against these same effects, it is, in reality, attended with less exposure to sudden atmospherical transitions than the opposite plan: Nature is ever indulgent when we observe her ways, and obey her dictates. Excepting the periods and places alluded to, the *transition in the open air*, from

the scorching heat of the day to the cool serenity of night, is gradual and easy. To this the human frame bends with safety, and we sink into a grateful and sound sleep, that renovates every corporeal and mental faculty. Whereas, those who exclude themselves from the breath of heaven, whether from necessity or inclination, become languid, from the *continued* operation of heat, and the want of repose; in consequence of which the slightest aerial vicissitude (either from leaving their couch, or admitting a partial current of cool air, which they are often compelled to do) unhinges the tenor of their health, and deranges the functions of important organs! These are they, who require the afternoon *siesta*, and to whom, indeed, it is necessary, on account of the abriged refreshment and sleep of the night; while the others are able to go through the avocations of the day, without any such substitute—a great and manifest advantage!

The nerves so temper'd never quit their tone—  
No chronic languors haunt such hardy breasts.

Indigenous custom is, generally speaking, in favour of sleeping in the open air, during the hot seasons, in most Eastern countries. The practice, indeed, is less adopted in Bengal, for very obvious reasons, than on the Coromandel coast; but the Native sleeps much cooler, at all times, than the European, from this circumstance—that his bed seldom consist of more than a *mat*, while a piece of *calico* wrapped round him, supplies the place of bed clothes. The more closely we imitate these, the better will it be for us. Indeed, a thin hair mattress, with a

sheet and palampore, are the only requisites, independently of the thin gauze or mosquito curtains, which defend us from insects, and, when we sleep out on the *chabootah*, arrest any particles of moisture that may be floating in the atmosphere. Early hours are here indispensable. The fashionable nocturnal dissipation of Europe would soon cut the thread of our existence between the tropics. The order of nature is never inverted with impunity, in the most temperate climates; beneath the torrid zone, it is certain destruction. The hour of retirement to repose should never be protracted beyond ten o'clock; and

“ Soon as Aurora, daughter of the dawn,  
“ With rosecate light impearls the dewy lawn,”

we should start from our couch, to enjoy the cool, the fragrant, and salubrious breath of morn.

We shall conclude this section with a few remarks on Incubus, or Night-mare—a very troublesome visitor to a tropical couch.

The *proximate cause* of Incubus has given rise to various speculations. A very general opinion prevails that this affection is produced by mechanical obstruction to the blood's circulation from particular position of the body. It is a certain fact, however, that no posture is a security from night-mare among the predisposed; neither is a full stomach to be accused as the cause, nor an empty one to be expected as the antidote of this disorder. There is, however, an almost universal opinion, that incubus attacks persons *only* while on their backs!

and this opinion *seems* to have some foundation in fact, from the following circumstances. One of the symptoms almost inseparable from the disease is this, that the patient *appears to himself* to be kept down upon the back by some external force; and as, at the moment of recovering the power of a volition, a great confusion of ideas prevails, a person may easily imagine that he has recovered himself by some effort of his own, by turning from his back to his side. But these things are extremely fallacious, as there is no trusting to the senses during a paroxysms of incubus.

It appears, however, from the mode of treatment to which this disease gives way, that the primary cause, in whatever manner it may act, has its seat in the digestive organs, and that night-mare originates in defective digestion, whereby the food, which should be converted into good chyle, is transformed into a half-digested mass of acid matter, which is productive of heart-burn, eructations, flatulence, gripes, with the whole train of dyspeptic and hypochondriacal complaints.

There are many stomachs which convert every thing they receive instantly into an acid; and such will be generally found to be the case with persons subject to habitual night-mare, or frightful dreams and disturbed sleep. Such stomachs are too frequently distended with some acid gas, which alone gives rise, in many cases, to paroxysms of incubus; and may often be instantly removed by any warm cordial, as peppermint gin, brandy, carbonate of ammonia, &c. Whytt used generally to take a small wine-glass full of brandy going to bed,

in order to keep off night-mare and terrific dreams, to which he was very subject.

Of all medicines, however, the carbonate of soda, taken in a little ale or porter, as recommended by Mr. Waller, will be found the most efficacious. About a scruple, going to bed, is a sufficient dose; and where acidities prevail in the stomach, the same quantity, twice in the day, will be useful. This medicine not only neutralizes any acid in the first passages, but likewise brings away by stool, vast quantities of viscid slimy matter, so acrid as to burn and excoriate the parts it touches. The appetite now generally improves; but the propensity to acidify remains for a long time in the stomach, and requires great attention to diet and regimen. There are few people with whom particular kinds of food do not disagree, and these being known should be avoided. Thus chesnuts or sour wine will almost always produce Incubus among those predisposed to it, as was observed by Hildanus. “*Qui scire cupit quid sit Incubus? Is ante somnum comedat castaneas, et superbibat vinum fæculentum.*” In this country, cucumbers, nuts, apples, and flatulent kinds of food, are the articles most likely to bring on Night-mare.

The following draught I have found very efficacious in preventing attacks of Incubus, viz. carbonate of ammonia, ten grains, compound tincture of cardamoms, three drachms, cinnamon water, two ounces, to be taken going to bed.

Intemperance of any kind is hurtful. Most vegetables disagree; and pastry, fat, greasy, and salted meat,

are to be avoided. Moderate exercise is as beneficial, as sedentary employments, intense study, and late hours are prejudicial.

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## THE PASSIONS.

SEC. VII.—I have not yet alluded to the conduct of the passions, because most of the precepts that apply to the regulation of them in cold climates, will be equally applicable here. But I may be permitted to correct an erroneous (I think,) though very general opinion, that there is something peculiar in a tropical climate, which excites certain passions in a higher degree than in temperate regions. “There is,” says Dr. Moseley, “in the inhabitants of hot climates, unless present sickness has an absolute control over the body, *a promptitude and bias to pleasure*, and an alienation from serious thought and deep reflection. The brilliancy of the skies, and the beauty of the atmosphere, conspire to influence the nerves against philosophy and her frigid tenets, and forbid their practice among the children of the sun.”—p. 87. This is a very superficial, and a very false view of the affair. It is likewise a very immoral one; for it furnishes the dissolute libertine with a *physical* excuse for his debaucheries, when the real source may be traced to relaxation of religious and moral principles! I would ask Dr. Moseley to explain the reason why, if the “*promptitude to pleasure*” be increased in a hot climate, the *ability* to

pursue or practise it should be lessened?—a truth well known to every debauchee.

If the prevalence of polygamy in warm climates be adduced, I answer, that in countries where plurality of women is allowed, a minute and accurate investigation will shew, that among the lower orders of people the licence of the prophet is an empty compliment, for *they* find one wife quite enough. And as for the *higher ranks* of society, there is not *one in twenty* who has more than one wife, nor *one in five hundred* who has more than two. If we compare this last part of the statement with the picture of life in the *beau monde* at home, we shall not have much reason to congratulate ourselves on the great *physical continence* resulting from our gloomy skies, as contrasted with the “bias to pleasure” which springs from levity of atmosphere between the tropics.

May we not attribute the premature decay of native women in hot climates, to the long-established custom of early marriages in that sex, originally introduced by the despotism of man, but which has now effected an actual degeneracy in the female part of the creation. “It is a disgrace to a woman not to be married before twenty years of age; and we often see wives, with children at their breasts, as soon as they enter their teens.” I have not a doubt that, to the continued operation of this cause, through a long series of centuries, is owing the deterioration in question; for it is not conformable to the known wisdom of the Creator, that such an inequality should *naturally* exist between the sexes.

But to return. The removal of religious and moral restraint—the temptations to vice—the facility of the means, and the force of example, are the real causes of this “bias to pleasure;” and in respect to the effects of licentious indulgences between the tropics, I can assure my reader, that he will find, probably when it is too late, how much more dangerous and destructive they are than in Europe.

He now has explained to him the nature of this “propensity;” and as the principal cause resides neither in the air, nor the “brilliancy of the skies,” but in his own breast, he has no excuse for permitting it to sprout into the wild luxuriance of unbridled excess.

The monotony of life, and the apathy of mind, so conspicuous among Europeans in hot climates, together with the obstacles to matrimony, too often lead to vicious and immoral connexion with native females, which speedily sap the foundation of principles imbibed in early youth, and involve a train of consequences, not seldom embarrassing, if not embittering every subsequent period of life! It is here that a taste for some of the more refined and elegant species of literature, will prove an invaluable acquisition for dispelling *ennui*, the moth of mind and body. But even here there is a necessity for caution, as will appear from the following consideration:—

*Morbi cruditorum; or, Diseases of Literature.*

If the literary classes of mankind, locked up in their libraries, be secure from various morbid causes, to

which their brethren in the more active walks of life are daily exposed, they are preyed upon by a host of maladies, in some measure peculiar to themselves. It is a melancholy, but a certain fact, that a high state of intellectual cultivation is rarely attained but at the expense of bodily health; and hence the ludicrous observation of Frederic the Great, that "man seems more adapted by nature for a postillion than a philosopher," is not without foundation in truth.

While the mind is on the rack of thought, the body is inactive; and while a determination of blood is constantly kept up to the head, and consequently an excess of excitability obtains there, the stomach, liver, and alimentary canal become torpid; and hence arise the whole train of nervous, dyspeptic, and hypochondriacal complaints, to which the literary amateur is proverbially subject. To quote the words of a most intelligent physician,\* in a letter to the author, on this subject, "unfortunately the physical is too often in the inverse ratio of the intellectual appetite, and with the *Bulimia Doctorum* there is too frequently associated a stomach 'as weak as blotting paper,' to use Vogel's just but rather ludicrous comparison." The effects of literary study on the digestive organs, and, through them on the whole body, have been long observed, and sometimes exquisitely described both by poets and physicians. Ovid has painted the victim of intense thought with great spirit—"pallor in ore sedet, macies in corpore toto;" but Voschius and Ficinus have

\* Dr. Dickson, of Clifton.

given us as good a pathological account of the business as Abernethy, Parry, or any modern physician could do. "Studiosi, sunt cachectici, et nunquam bene colorati propter debilitatem digestivæ facultatis." *Voschius de peste.* Ficinus is still more particular. "Accedit ad hoc, quad natura, *in contemplatione*; cerebo prorsus, cordique intenta, stomachum heparque destituit; unde ex alimentis male coctis, sanguis crassus et niger efficitur, dum nimio otio membrorum superflui vapores non exhalant."

This intellectual exertion produces deleterious effects also, by preventing sleep. The tired brain can no more repose, than the overstrained muscles after violent exertion; hence the studies of the day rise in incoherent images at night, or drive away sleep altogether. "Partem noctis, studiis dedico, non vero sommo, sed oculos, vigilia fatigatos cadentesque, in opera detineo." *Seneca.—Ep. 8.*

But the worst of all is that pest of literature, *Hypochondriasis*, which, in a greater or lesser degree, attaches itself to all classes of the studious.\* The various uneasy sensations which the dyspeptic hypochondriac feels, are transformed in his imagination to the most dangerous diseases of which his reading has furnished him with any description.—Indeed so closely do the nervous or sympathetic, simulate organic derangements, that medical men themselves are often

\* By the term "studious" I do not exclusively allude to the *man of literature*; but to all the more studious classes of the three learned professions; and also to all those of other professions and occupations; where much thought is combined with a sedentary life.

deceived by the similitude, and how much more prone to error must the hypochondriac be, whose whole nervous system is unpoised; where the impressions are conveyed to the sensorium irregularly, and there make the most exaggerated impressions. Thus that flatulence in the stomach, so constant an attendant on sedentary habits and deranged digestion, will often so mechanically disturb the motions of the diaphragm, and obstruct the free action of the heart, that palpitations of this organ and intermissions of the pulse, with strange and distressing sensations in the chest, will be the consequence. Then the hypochondriac takes the alarm. Angina pectoris, polypi, ossification of the valves, &c. arise in frightful review, and aggravate all the symptoms! If, as is almost always the case, he has frightful dreams, and starts suddenly from his unrefreshing slumbers, then hydrothorax or dropsy of the pericardium is his miserable and unhappy lot! In these constitutions, where leanness is so general, a pulsation can be very frequently felt between the pit of the stomach and navel, on making moderate pressure with the fingers. This symptom, which, in reality, is nothing but the action of the aorta, obstructed perhaps by faecal accumulations, is immediately converted by the literary hypochondriac into an aneurism of the aorta or cœliac artery, and great and direful will be his apprehensions and forebodings.

There is no part of the body where these morbid feelings will not seat themselves, and ape the more serious organic lesions. In the bladder they will imi-

tate stone, and harrass the hypochondriac with the constant dread of lythotomy. In the lungs they will assume the mask of asthma, nay of phthisis itself; and the pseudo-purulent expectoration will confirm the patient in his belief that consumption is his lot !

From their inactive life, torpid bowels, indigestions, and intense thought, the studious are very much affected with head-aches. These are soon converted by the sensitive patient into organic diseases of the brain or its membranes; and epilepsy, apoplexy, or mania itself are set down as the certain consequences that may be daily looked for !

It is no easy task to root this wrong impression out of the imagination, while the morbid sensation retains its seat in the corporeal fabric. Indeed arguments have oftener the effect of riveting the hypochondriac in his opinion, than of persuading him of his error. In truth, it sometimes requires all the discrimination of the physician to distinguish the real from the pseudo-affection; or, in other words, to draw the line between the sympathetic and organic lesions of the interior organs of the body. When they are proved to be of the former class, nothing but dissipation of mind and exertion of body can effect a cure. By dissipation I only mean the withdrawing the mind from literary pursuits, and from the opportunity of dwelling on the corporeal sensations, such as horse exercise, or any amusement that requires some management, and presents a succession of objects. When Pope wrote

—“Study and *ease*  
together mixt sweet recreation.”

he should have substituted *exercise* for ease, as the literary advocate can seldom be at ease in his brain, even when walking about, and much less when at rest.

Whenever we find the *diseases of literature* assails us, we should have the *lamp* scoured out and no more oil put in it. It is *night study* that ruins the constitution by keeping up a bewildered chaos of impressions on the brain during the succeeding sleep—if that can be called sleep which is constantly interrupted by incoherent dreams and half-waking trains of thought. Such is the sensibility, and such the irritability of the studious brain and nervous system, that it is even dangerous to indulge in the sight of theatrical representations, as the mimic scene is sure to rise in the distempered imagination, should sleep take place; but more frequently the histrionic impression continues so vivid as to banish all tendency to repose, and the night is spent in tossing on a sea of incongruous images, and floating among the *disjecta membra poetæ*!

As the digestive organs are particularly implicated in the derangements resulting from literary studies, the blue pill and aloes, three grains of the former and one of the latter, should be taken every second or third night, to carry off diseased, and increase the healthy secretions of the liver and alimentary canal. Acidities in the stomach and bowels should be corrected by magnesia and the volatile alkali, while the sea air and bath should, if possible, be enjoyed in the warm season.

Si sapis queris igitur Salutem,  
En tibi portus patefit Salutis.

# MEDICAL TOPOGRAPHY

OF

## New Orleans;

WITH AN ACCOUNT OF THE

## PRINCIPAL DISEASES

THAT AFFECTED THE

## FLEET AND ARMY

OF THE LATE

UNSUCCESSFUL EXPEDITION AGAINST THAT CITY.\*

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BY ARCHIBALD ROBERTSON, M. D.

MEMBER OF THE ROYAL MEDICAL SOCIETY OF EDINBURGH, &c. &c.

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NEW ORLEANS is situated in 30 degrees of North latitude, and 90 of longitude West from London. It stands on the left bank of the Mississippi, about 100

\* The substance of this Paper appeared *anonymously* in "The Edinburgh Medical and Surgical Journal," about two years ago. Since that period Inter-tropical Dysentery and Fever have occupied a very considerable share of my attention chiefly in consequence of my having selected the former as the theme of my Inaugural Dissertation published last year at Edinburgh. In reprinting these observations on the present occasion, I have made every where such alterations and additions as time and additional reflection have suggested.

miles from its mouth, and may justly be regarded as the capital of this district of the New World, from its commerce, its opulence, and its population. It is the great emporium into which the scattered inhabitants of the upper country and the surrounding desert, pour their cotton and their skins, receiving, in return, many of the necessities of life, and some of the luxuries of refinement.

The River Mississippi forms a most august feature in the physiognomy of this country. While the majestic grandeur of its stream, and its unexampled length of course, excite the admiration of the naturalist, and its subserviency to the purposes of commerce claims the attention of the statesman, it is no less interesting to the medical philosopher from the direct and conspicuous influence which the distribution of its waters has upon the soil and the health of the country around its mouth. This magnificent river has its source in the remote, and almost unknown, regions of the North-American Continent. Slender in its origin, the infant flood is interrupted by mountains, and broken by cataracts, until it receives the proudly-independent (rather than tributary) streams of the Missouri, the Illinois, and the Ohio, when it rushes irresistibly forward to the ocean, with a current both broad and deep. Pursuing its course with innumerable sinuosities, through fertile meadows over whose vast extent the tired eye cannot stretch,—through sequestered regions where Nature has no one to witness her awful mysteries,—and through the gloom of forests coeval with the creation, it at last, after a

course of three thousand miles, pours, by several mouths, the mass of its weary waters into the Gulf of Mexico.

The country around New Orleans is a perfect plain, frequently intersected by the outlets of the river, and not unfrequently, during winter and spring, watered by its inundations. Indeed, the city itself is built upon what may be called a *delta* formed by this *Nile* of the Western World. In a country of this description, it will readily be conceived that marshes are very numerous and extensive; in fact the whole country, especially in winter, is a continued marsh,\* with merely solid patches (very fertile indeed) here and there. The few roads, and the site of the different forts, are generally made ground.

Even the ground on which the town stands, bears evident marks of comparatively recent formation, and probably consists chiefly of the attritus of the various soils through which the river passes, mixed with an infinite variety of vegetable remains. On digging a very few feet under the surface, abundance of water, soft mud, and trunks of trees are met with. These last have, no doubt, been flooded down, and stranded by the current, where receiving hourly reinforcements of vegetable debris, and other rubbish, the whole has been bound into one immoveable mass by the viscid mud of the river.

\* Abbe Raynal asserts, from statistical observations of Louisiana, that the surface of the Mississippi, in the neighbourhood of New Orleans, is higher than that of the surrounding country. He attempts to explain this phenomenon in a way rather ingenious than solid. See his Philosophical and Political History, vol. 6th—Book 16.

The climate too of New Orleans must not be overlooked, as its peculiarity co-operating with the above-mentioned distribution of the Mississippi, and alluvial condition of the soil, is the real and only cause of those formidable diseases to which this city and its vicinity are subject. From the end of November to the end of March, notwithstanding the lowness of the latitude, the weather is generally cold and rainy, with frequent sharp frosts. At those times the thermometer (Fahrenheit's) ranges from 20 to 40 in the shade: and there are instances, I have been informed, even in so low a latitude as 29 North, where, in the night, it is only a few degrees above zero. On the contrary, during summer this climate has all the characteristics of the torrid zone; the thermometer stands at 87. or 90. in the shade. At New Orleans especially, the weather is close and suffocating, from its distance from the sea, and consequently the entire absence of that refreshing luxury of a tropical climate—the sea-breeze,—from the air being surcharged with watery vapours, and rendered relaxing thereby, and from the smell of the mud of the river and swamps, which is often, even in winter, very sensibly offensive.

The description here given of the climate and soil of New Orleans will apply, almost without alteration, to the contiguous district of the Floridas, though the aspect of the latter is very different. In the former, indeed, there are many traces of human industry, culture, and refinement; but in the latter, Nature still pours forth her gifts in solitary and comparatively unprofitable exuberance. Never did I see a shore more inauspicious and

uninviting! The whole country is a dreary flat, indented with stagnant creeks, salt-water lagoons, and muddy rivers, whose waters scarcely ripple, save with the silent plunge of the alligator, and whose banks are concealed by the darkness of endless woods, that approach to the very brink of the sea, as if envious of its dominion. Here there is no variety—no eminence to relieve the eye while wandering over the insipid level of Dingy-green,—not a single appeal to human feelings or to the kindly emotions of our nature,—not one object, in short, to call forth those mixed associations of interesting simplicity, domestic content, happy industry and cheerful civilization which constitute the charm of the rural landscape in England,—a charm which the spectator recognizes in the undefined emotions and recollections which crowd and dilate his bosom. On the contrary, the whole scene suggests vague impressions of solitary terror and savage wildness, and presses home upon the heart the chilling ideas of dereliction and desolation.\*

The local peculiarities in the climate and soil of New Orleans give rise, during winter, to epidemic dysentery, and in summer, to ardent fevers of a very rapid and dangerous form, from which the inhabitants, but particularly strangers, suffer most severely. The oc-

\* I am sorry that my account of this district is so entirely opposite to the published opinions of the late venerable traveller, M. Chateaubriand. In hyperbolical raptures, and in the very pith of sentimentality, has that amiable gentleman declaimed about "the oaks of Florida," "the spirit of the desert," "the pleasures of an Indian camp," and all the delightful *et ceteras* of a savage life!—'Tis indeed passing strange. But, "De Gustibus," &c.

currency of such complaints, some readers, from the above detail, will consider as a necessary consequence; and, in my own opinion, it is even so. Lest others however should be sceptical, it shall be my business, by and bye, to make this preliminary picture of the Medical Topography of the country subservient to observations of higher interest, and to prove by facts the reasonableness of opinions.

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About the middle of November, 1814, the expeditionary force destined to act against New Orleans arrived at Jamaica under the command of Vice-Admiral the Honourable Sir Alexander Cochrane; and the whole fleet of ships of war and transports having rendezvoused there, took their departure from Negril Bay, at the west end of that island, about the end of November, full of health and hope.

Before the middle of December, the fleet arrived on the coast of Louisiana, and took steps for disembarking the troops without delay—a measure against which nature seemed to have opposed ample and almost insurmountable obstacles. Moreover the passage of those lakes which formed the only practicable approach was obstructed by five large American smacks or gun-vessels, mounting several heavy guns each, and admirably adapted, from their build, for operating in those shallow waters.

The latter vexatious impediment, however, was soon conquered by our sailors, who shewed, on this occasion,

all that “æs triplex,—that hardy, careless, characteristic valour for which they are so illustrious. The boats of the fleet, manned and armed, were sent away, and, after a tiresome row of thirty-six hours, succeeded in penning the enemy up in a creek, where they attacked them against the superior odds of their position and their force, and after a furious engagement, captured every one of them. This achievement was decidedly gallant, and would have stood amidst the most brilliant feats of naval warfare, had not the subsequent failure of the main object of the expedition thrown a bleak shade over its lustre.

About the beginning of January (1815) bowel complaints, which had previously appeared amongst the boats' crews and the fatigue-parties of the army, began to be very rife.—They varied in degree of severity, from the milder symptoms of dysentery to its most aggravated forms. I may enumerate in a few words the symptoms of the disease. The patients, for the most part, complained of severe tormina, tenesmus, scanty bloody dejections, want of appetite and strength, general pains and soreness, and a strong disposition to vomit on taking either food or drink. The tongue was white or yellow; the eye languid; the pulse above 100, small and easily compressed; the skin often dry, or covered with clammy sweat, but always considerably increased in temperature.

The causes were, generally speaking, obvious enough.—The men had been rowing all day, and sleeping all night in the open boats. They had in-

cautiously drank the brackish water of the lakes, and had sometimes been obliged to eat their beef or pork raw, when, on an emergency, they were deprived of an opportunity of cooking it. They were often drenched with rain, or dripping with spray, without being able to put on dry clothes. Added to all this, the weather was extremely cold, particularly in the night, the thermometer before sunrise being often as low as 25 or 26 degrees, rising no higher during the day than 30 or 38 degrees, and seldom above 50.\*

The locality of the general rendezvous for the boats was very bad (though the best that could be found,) being a miry place, covered with reeds, and abounding in miasmal exhalations.

The encampment of the army, too, was on a swampy spot on the left bank of the Mississippi, about six miles from New Orleans. Indeed, the whole vicinity is a

\* The Physiologist might have contemplated with interest, on this occasion, the marked difference in the effect of cold on the European and the African constitutions. While the former were, comparatively, only incommoded, the latter were severely injured by it. Many soldiers of the negro regiments had their feet frost bitten, and lost their toes by the consequent gangrene and sphacelus. Some of them even died in the camp or in the boats, from excessive cold. Of our own people, many of the boats' crews, and even of the officers, on their return from boat service, were incapacitated for six or ten days, by pain, numbness, shooting and tingling of the lower extremities. They expressed their distress to be as great as if their feet and legs, from the knees downwards, had been *one immense chillblain!* Various remedies were tried for this teasing affection; but nothing I could devise gave any relief. Temporary ease was derived from frequently bathing the feet in cold salt water. This peculiar affection I now here find mentioned by writers on the effects of cold.

swamp, which, after the rains so frequent at that season of the year, became a perfect puddle. Having the Mississippi on their left, they drank its discoloured and polluted water, and were exposed to the effluvium of its slimy mud, as well as to the paludal exhalations of an impracticable wooded morass on their right. The huts, also, in which the troops were sheltered, were far from being impervious either to rain or cold: so that, upon the whole, the army and navy, in point of privations, were much upon a par.

On the first appearance of dysentery, its treatment was commenced by a flannel roller bound tight round the abdomen, and ordering flannel clothing next the skin, if the patient had it not already. Saline cathartics, and particularly oleum ricini, with now and then a few grains of calomel, were repeatedly given, until the stools were increased in quantity, and more freely rendered. At the same time, plentiful dilution with tepid gruel, warm tea, rice or barley-water (with a tinge of port wine and a little sugar, so as to remove its nauseous insipidity, and allure the patient to drink it in such quantities as would prove useful,) as also decoctions of lintseed or of gum-arabic, I always considered of primary importance as well in promoting the cure, as in alleviating symptoms. Demulcent drinks I hold to be of much moment in this complaint, as they, no doubt, in some measure, defend the irritability or semi-inflamed coats of the bowels from the stimulus of the ingesta, besides sheathing the acrimonious secretions which, during this disease, are unquestionably

poured out from the intestinal glands, and supplying the want of excretion from the mucous follicles.—I have had occasion to see even olive oil given with this view, in doses of an ounce or two, and the relief that always followed it, even though it had no laxative effect, was very conspicuous.

When the primæ viæ had been fully evacuated, an attempt was made to restore the natural secretions, and the balance of the circulation, by opening the pores of the skin. Antimonial powder, with opium, was employed for this purpose; but more generally the pulvis ipecacuanhæ compositus, which certainly seemed to succeed best.

Whenever tormina and straining returned in a worse degree than ordinary, a cathartic was given in the morning, followed by a large dose of opium, or an anodyne diaphoretic at night.

Believing, as I firmly do, that wherever there is morbid activity of the vascular, and increased mobility or excitability of the nervous system (the former evinced by undue velocity and force of motion of the heart and great vessels, and the latter by morbid evolvement of animal heat, general pains, lassitude, &c.) *there* blood-letting is very seldom inadmissible, whatever be the name or nature of the disease,—it is almost unnecessary to say that, in the complaint I am now describing, the lancet formed a leading agent in the methodus medendi. Whenever the stools resembled the “*lotura carnium*,” I practised depletion with as much freedom as if there had been active hæmorrhage from the intes-

tines from any other cause;—the amended appearance of the alvine discharges, and the diminution of the pyrexial symptoms not only justified but sanctioned the apparent boldness of a measure, which I have reason to know, has succeeded equally well in other hands besides my own. Many of our primary cases, however, were not so severe as to require venesection.

By these means, aided by perfect quietude, repose, and low diet, the febrile state soon disappeared, and nothing remained but debility and irregularity of the bowels, which were to be removed by the *mistura cretæ cum opio*, the *infusum quassiaæ excelsæ*, or the *mistura cinchonæ*, given thrice or four times a-day, and a gentle laxative once in three or four days.

Many of our earlier and milder cases yielded to this treatment; but those of a severer sort required measures less inert. In these malignant forms of the disease, I began by giving a strong saline or lubricating cathartic. Here, too, bloodletting was very freely practised, when the patients were young and robust, or indeed, whenever the force of the pulse and pyrexia seemed on general principles to justify it. I never once saw cause to repent of this evacuation, though I have more than once carried it to a great extent. It often moderated local pain of the abdomen, diminished the severity of the griping, and when practised with prudence, did not perceptibly increase the subsequent debility.—These preliminary steps being taken, I immediately commenced the use of Calomel, and pushed on undeviatingly to salivation, from the belief, which seems to be

well-founded, of an occult connection betwixt dysentery and a morbid condition of the liver.

The doses I gave were regulated by the constitution of the patients, and the actual state of the symptoms; but *one scruple* night and morning, was the most usual prescription,—seldom less than ten grains thrice a-day! I gave a scruple night and morning so often, and in such a great variety of habits, that I soon ceased to be at all fearful of hypercatharsis, or, indeed of any other unpleasant effect. It certainly seldom, in any case, increased tormina and tenesmus, but generally lessened both very materially, and produced five or six large motions, voided with less straining and less tinged with blood. I have in this way given 16, 24, or 32 scruples of calomel in the course of half as many days, before the mouth became affected. When the gums were fairly sore, with some ptyalism, the calomel was omitted, the tormina, tenesmus, and general fever disappeared *as a matter of course*, and the bowels gradually returned to their natural state, the stools often changing, in one night's time, from a dark brown or *spinage* colour, to a bright healthy yellow, with the odour of natural faeces. Some tonic or stomachic was prescribed during the days of convalescence; and generally, as soon as the mouth was well, the patients were fit for duty.

Calomel was often thus given alone and uncombined; but often I thought it preferable, on account of occasional symptoms, to conjoin with it two grains of opium, or to give at noon (in the interval between the doses of calomel) twelve or fifteen grains of the pulvis ipecac-

euanhæ compositus. This was done in order to lessen the irritability of the bowels, and to support the cuticular discharge. Under such management, every case recovered where no visceral obstructions existed, or where the co-existent disease of the liver was not irretrievable from having passed into disorganization.

As to the fact of visceral obstructions, I believe they are a more frequent occurrence, even in our own climate, than is generally supposed: but I am persuaded that, of those who have lived for any length of time within the tropics, scarcely fewer than *four-fifths* have one viscus or other in the abdomen, more or less altered by morbid action. This opinion is deduced from a very considerable number of dissections of such subjects.

Opium is one of those remedies of doubtful utility in dysentery, which has been by some violently decried, and by most rather sparingly used, from its alledged tendency to suspend the natural secretions, lock up the excretory ducts, and check the transpiration by the skin. Candour obliges me to say that I have used it largely, particularly in the chronic forms of the disease, and that I have never noticed any of the unfavourable effects urged against it; but on the contrary can bear witness with the illustrious Sydenham, Dr. John Hunter, and several living authors, to its beneficial power. Given after purgatives, it can seldom be unsafe—and, if it does no more, it procures a temporary truce from the disease. How important a cessation from suffering is, in every illness, but more especially in so endless and harassing a complaint as dys-

entery, I need not say—prejudices, probably illusory and theoretical, ought to give way to an advantage so substantial.

Nevertheless it must be admitted, that in the early or acute stage of dysentery, this remedy must be administered with a very cautious and discriminating hand—inasmuch as, at that period of the disease, inflammation either exists overtly, or disguised under some of its peculiar modifications. Under such circumstances, therefore, it becomes necessary not only to premise the opium with bloodletting and purgatives, but also to combine it with some unirritating diaphoretic, such as pulvis ipecac. aqua acetetis ammoniæ, &c. in order to prevent it from increasing vascular action, and suppressing cutaneous excretion.

Almost the whole body of the profession have concurred in praising injections in this disease. I, of course, defer to the experience of others, while I detail my own. Having found them almost uniformly hurtful, I entirely laid them aside. The irritation produced by the introduction of the pipe, more than counterbalances the soothing effects of the injection. Besides the disagreeableness of this species of remedy when often repeated, to the good old English habits of delicacy, I have always seen that, were the enema ever so bland, or ever so small in volume, it could not be retained beyond a very few minutes, and always occasioned more straining and tenesmus in the sequel. As a commodious substitute for injections, I have directed patients to insinuate into the anus a *small* crumb or

two of opium, softened betwixt their fingers for the purpose;—or have caused warm fomentations to be used to the parts, and bladders of hot water to be applied to the hypogastric region. These are wont to succeed so well, that the patients themselves speak in the strongest terms of the relief afforded by them.

The diet of the sick is of the utmost consequence in this complaint. It should be so regulated that nothing *cold* either in the shape of food or drink, be taken into the stomach. Sago, arrow-root, weak soups, &c. may be used during the pressure of the disease; and animal jellies, and other articles, easy of digestion, during convalescence. When the disease has yielded, it is of the first consequence that we do not prematurely indulge the patient with animal food, even though his appetite strongly crave it; for it must be obvious that such food will be received into an alimentary canal, as yet by far too weak to digest or assimilate any but a very small portion of it. Hence springs a dreadful source of irritation to the weak and irregular bowels; and I am satisfied that I have seen some fatal relapses of dysentery brought on by the injudicious kindness of the patient's friends, who have clandestinely indulged him with animal diet, under the erroneous impression of thereby strengthening him. In many other instances, I have seen apparently very venial excesses either in the quantity or quality of the food during convalescence, induce true lienteria: in truth, the latter complaint is too apt to be the consequence of long protracted attacks of dysentery, do what we will, and be our dicte-

tic restrictions what they may. I need scarcely add that vegetables and fruit, unless well boiled, and used in very sparing quantity, are quite inadmissible—owing to their proneness to run into the acetous fermentation, in all instances where the chylopoetic organs are debilitated.

*Blisters* to the abdomen I have occasionally used, and that with some apparent advantage, in this disease.—But, I believe, most practical men will agree with me when I say, that if due use has been made of the lancet at the outset of the complaint, the subsequent and subordinate aid of vesicatories will very rarely be any way essential, or necessary. Besides, they labour under the objection of causing often difficult micturition from the absorption of the cantharides; and it must be recollect that, in most cases of dysentery, strangury is already existing, from a sympathy betwixt the bladder and the rectum, while the latter is in a state of constant and almost inconceivable irritation from tenesmus. It might be well to try whether the interposition of a bit of muslin betwixt the blister and the skin, would have the effect, as it is said to have, of preventing the absorption of cantharides.

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The advanced-guard of the army was disembarked on the 24th of December, and took up a position on the only road to New Orleans, and there awaited the landing of the remainder. After several minor skirmishes, the troops (with whom the marines of the fleet

and the sailors trained to small arms, had previously been incorporated) were formed into columns, and on the morning of the 8th of January, before daylight, advanced to storm the American lines.

These works were defended by a broad ditch filled with water, as also by a palisade, and a wall mounted with numerous pieces of cannon. The enemy, apprised of our intended invasion, had drawn these lines quite across the only route to New Orleans. They were absolutely inaccessible at their flanks, as their right touched the Mississippi, and their left rested on an impassable wooded morass. This was the spot which the laws of nature as well as the rules of art had concurred to strengthen; this was the strait which the Americans would fain compare to the immortal pass of Thermopylæ; but entrenched, as they were, to the teeth, and fighting, in effect, completely under cover, there was no call for the self denying devotedness of a Leonidas, and no exercise for either the active or passive valour of Sparta.

The attempt to storm failed: our columns were beat back at every point, with a loss, I believe, of more than five hundred killed, and upwards of twelve hundred wounded.

The expedition being thus foiled in its object, the troops were once more collected on board the fleet, and proceeded off Mobile River, to attack the town of that name. Fort Bowyer, which defends the harbour's mouth, being quickly and regularly invested, was captured on the 11th of February: but the ulterior opera-

tions were suspended by the arrival, from England, of the news of the peace of Ghent. The troops were disembarked on a sandy uninhabited spot, called *Dauphin-Island*, there to await the ratification of the treaty, and the arrival of such supplies of provisions as would enable them to prosecute the voyage homeward.

It is worthy of remark, that, notwithstanding the almost unexampled fatigues and privations of all sorts to which the army and navy had been exposed while before New Orleans, sickness of any kind, up to the 8th of January, had made comparatively little progress amongst them. The bowel-complaints, though numerous, were, for the most part, easily removed; and no other disease of any consequence prevailed. It is not a little remarkable in the medical history of fleets and armies, that, during the fatigues and sufferings of a hot campaign, or the active progress of warlike operations, the men are very little subject to illness of any sort; as if the elation of hope, and the other great passions with which they are agitated, had the virtue to steel the constitution against the most powerful causes of disease. This circumstance—no less curious than true—proudly proves the ætherial origin of our nature, and goes far to assert the almost omnipotency of mind over matter!—No sooner, however, does a great failure, and the dejection it draws after it,—a cessation of operations and a return to the “*vita mollis*,” allow the spirit of enterprise to flag, than the previous fatigue and exposures begin to tell upon the constitution by their usual results—disease. Like a machine wound up beyond its

pitch—the excitement of accumulated motives once withdrawn,—the human frame rapidly runs down, and yields with a facility almost as unexpected as its former resistance. Hence, after a campaign, diseases of every kind are prone to a type of debility and aggravation, and the proportion of deaths is unusually numerous.

Accordingly, in the instance before us, the pressure of ill success began to be severely felt after the failure of the 8th, and the consequent re-embarkation of the army. By this time unremitting fatigue, poor living—and that at short allowance, with the total want of fresh beef and succulent vegetables, not only altered for the worse the character of the bowel-complaints, and produced a fatal relapse in some recently cured, but also introduced scurvy, with its multiplied series of perplexing symptoms. Exposure to marsh-miasma, also, produced many cases of fever, which were at first intermittent, but, as the weather grew hot, put on the violent remittent, or, more generally, the ardent continued form. The great increase of atmospheric heat which now took place evidently exasperated the type of the prevailing dysentery, as well as that of the fever: this, along with some other facts which I shall state hereafter, induced me to believe that one common miasm gives rise to these two forms of disease, and that the former is essentially different from the dysentery of cold climates, which, being merely a vicarious discharge from the intestines, owing generally to suppressed perspiration, is, for the most part, rendered milder, if not altogether extinguished by the genial warmth of the season.

Dysentery now put on that aggravated form in which it has so often scourged our camps and fleets; and never shall I forget the terrible force of this invisible enemy. In all cases it was a very baffling, untractable disease, but in those who had previously served long in warm climates, and whose livers were thereby affected, it was almost uniformly mortal. When the disease attacked such persons, it was a subject of melancholy but curious speculation to witness the headlong course of the malady, and how unavailing any species of treatment invariably proved. It knew neither pause nor hindrance, but, like the fabled vulture of ancient mythology, pursued its cruel task from day to day. Dissection always brought to light extensive visceral obstructions, particularly chronic inflammation or abscess of the liver, with or without enlargement of that viscus. Nothing but experience can convey adequate ideas of the ungovernable nature of this disease, or of the insidious masked approaches of its attack. Days of an indisposition, apparently trivial, sometimes occur, ere the peculiar symptoms of dysentery shew themselves, and would induce a practitioner unacquainted with tropical diseases, and unaware of the peculiar character of the prevailing epidemic, to pronounce the complaint trifling, or as being nothing more than slight fever, symptomatic of gastric disorder;—at other times, smarter pyrexia, and occasionally a pain in the right side, obtuse or acute, followed by frequent copious dark-green stools (like *boiled spinach*,) slightly tinged with blood, are the form of the disease.

In most of the cases, griping was little complained of. There was merely a sense of weight in the hypogastric region, and a copious *flux* of green or dark-brown colluvies, voided without straining. The tongue was covered with a yellow fur, which, in the advanced stage of the disease, became thick, dark, and immovable as a slab of black marble. The pulse was sharp, frequent, and weak: frequent retching and hiccup attended, and a sensation as if all the drink swallowed hot or cool, ran speedily through the intestines. Oftner the complaint would make its attack with the common introductory symptoms, and no pain in the right hypochondrium was felt throughout the disease, either on inspiration, or strong pressure under the false ribs. In whatever garb of disguise it makes its appearance, disease of the liver (as I have before stated,) and consequently a vitiated state of its secretions, were undoubtedly the primary cause of the mischief. Dissection of the fatal cases shewed structural derangement,—a soft friable condition, and generally suppuration of that gland. I have often found two separate abscesses in the parenchyma of its large lobe, the one generally less deep-seated than the other, and containing, in some instances, a quart of pus, similar in colour and consistency to what is usually found in psoas abscesses. How such extensive disorganization, and formation of matter could take place without any preceding palpable indication of local mischief, is to me still a mystery. But such was the fact.\*

\* Since these observations were first published in the

On the villous coast of the colon and rectum, there were numerous excoriated points, with small superficial

Edinburgh Journal, almost every one has expressed his surprise at the co-existence of such extensive hepatic disease with tropical dysentery: nay, the thing is so striking in itself, and is so contrary to established opinion, that not a few have gone so far as to deny it altogether, or to assert that it must be a very rare occurrence indeed; and that the affection of the liver is merely contingent, and not necessarily connected with dysentery. I think I am warranted by facts in maintaining the contrary,—viz. That the co-existence is very frequent, if not uniform; and that the connection is no less strict than that of cause and effect.

I can, however, well excuse a degree of scepticism on this point, knowing that what happened to myself may equally happen to others,—namely, that many cases of dysentery may be examined after death, without the concomitant disease of the liver being discovered:—for who would dream of cutting minutely into that viscus, in a disease generally supposed to bear no relation to it?

It was by accident I first discovered the fact, and I shall relate it concisely, just as it happened: a naval officer, for whose talents and virtues I shall ever entertain the highest respect, whose memory I shall ever affectionately cherish, and whose death I shall ever regret as the loss of a valued friend, was the first on board H. M. S. Cydnus that fell a martyr to dysentery off New Orleans. He happened to die at sea, and it became desirable to preserve his body until we should reach some port, where the funeral honours, due to his rank, might be decorously paid. In order to effect this, it became necessary to remove the intestines. While doing so, I ascertained that the liver was much enlarged, and therefore thought that it also had better be removed. Having separated it from its lateral connections, I passed my hand up under the ribs in order to detach it from the diaphragm. While making a slight pressure for the latter purpose, I was astonished to find the points of my fingers pass through the thin parietes of a large abscess in the upper and central part of the right lobe, from which upwards of a quart of pus forthwith flowed. After the liver had been removed and laid out for minute inspection; I found the abscess of such extent, and so lined in its inner surface with a thick, fretted, and irregular exsudation of coagulable lymph, that it resembled a familiar and homely object,—namely, a large winter glove lined with worsted!—On accurate examina-

ulcers here and there; but no morbid alterations were found *there* sufficient to account for death:—no gan-

tion, a second abscess was found, lower down in the large lobe, containing a pint of pus.

This officer had never at any period of the disease felt any pain in his side;—from his general intelligence, and from the accurate descriptions he gave me daily of his minutest sensations, I am convinced he would have mentioned that pain, had it existed even to the extent of a “*sensus molestiæ*.” Besides, he was one of the last men in the world that one would have suspected of hepatic affection, being florid in complexion, and having previously enjoyed the best health all his life.

Instructed by this insidious case, I had my eye to the liver ever afterwards; but pain of side, or pain on pressure under the ribs, was by no means often felt, though dissection after death brought to light hepatic disorganization equally extensive as in the above case. In many, the liver to appearance, had the colour and size of health, and it was not till on cutting into its parenchymatous substance that the extensive abscesses were discovered.

These facts are of such high importance in the pathology of dysentery, and so much depends upon the degree of credit that may be attached to them, that I am sincerely glad in being *now* able to say, that they do not rest upon my solitary or isolated observation. Within these few days I have been favoured with an excellent and most interesting communication from James Simpson, Esq. Surgeon, R. N. in which he details to me the cases and appearances on dissection of several dysenterics that were treated by him in the East Indies. At the time he made the observation, he was not aware that similar ones had been made by myself in the Western Hemisphere; therefore his remarks must carry with them the force of unbiassed and independent observation. The symptoms before, and the morbid changes after, death, were substantially—nay, exactly—the same as I have detailed in this paper, and in my Inaugural Dissertation: and Mr Simpson, speaking from the facts he has so often witnessed, express his conviction that “future experience will unfold to us that liver-disease is an inseparable attendant of dysentery in warm climates.” I am sorry that want of space prevents me from copying more amply his able and satisfactory details. I have reason to know that the observations of some other practitioners exactly concur with those of Mr. Simpson and myself.

grene—no ravages in short, like those related by Sir John Pringle, Harty, and others, in their accounts of this malady.

In fact, (to give a condensed view of the whole matter), the phenomenon of the cases that recovered, as well as the morbid appearances of those that died, impressed upon my mind a conviction that the diseased condition of the liver was the soil from which dysentery drew its malignant growth, strength and nurture. This was the “*fons et origo mali* ;” by it the dysentery was excited, and only by *its* removal could it be removed! This view of the disease I conceive to be of great consequence, and trust it will meet with due consideration from the profession, inasmuch as it is a view not taken up hasty, or out of complaisance to a favourite hypothesis, but deduced from nearly two hundred cases, and built upon the corner stone of morbid dissections. I hope the time is not far distant when more accurate observation will teach men at large, to regard this disease merely as secondary to, and symptomatic of hepatic affection, and to seek its more immediate cause in a morbid condition of that important organ, the liver. Whatever may be the *mode* of connection\* between hepatic derangement and dysentery,

\* About the mode of that connection I have indeed speculated pretty freely and pretty largely elsewhere, having employed a good many pages of my Thesis in the discussion of the ratio symptomatum as well as of the ratio causarum — yet, I must confess, that the opinions are purely, or at least in a great measure, speculative ; and that they are not satisfactory even to my own mind.

I shall not farther detain the reader in this place, but pass

I am convinced from analyzing my own sensations, as well as from having counted in others the links of the pathological chain, that, at least in tropical climates; these two diseases are connected like cause and effect. The practise which most readily removes the disease, too, tends much to confirm me in this conviction, for the "mercurial method" I have pushed to a great extent, and its results have been such as to give it a very decided preference in my estimation. Calomel (that great specific in obstructions of the liver, and justly styled by Dr. Curry of London a *cholagogue*) given in

the matter over entirely, resigning to writers of greater native talent, and better inured to habits of difficult investigation, the task of establishing a theory of the disease which shall at once be rational, and shall satisfactorily explain all the phenomena.

I may, however, be permitted to hint that no hypothesis which has simplicity for its basis will ever explain this disease: unquestionably Dr. Johnson's leading idea is a most valuable one, viz. that in our investigations of this malady we must seek its source not in one morbid cause, but in a series of morbid causes.

I wish it to be distinctly understood that it is my inability alone that induces me not to attempt the theory of this disease; for I shall never fall in with that tone of affected contempt for all theories, in which presumptuous dullness so often shelters its imbecility, and vapid indolence so often masks its habitual and insuperable torpor. Such ill-bestowed contempt may be sufficiently reproved by simply stating the undeniable fact, that not only in medical, but in every other branch of natural and experimental science, few brilliant discoveries have been made except by those acute and industrious men who were labouring to establish some darling hypothesis. Though they were often disappointed of the results they had in view, still they were generally compensated by the discovery of something equally or more valuable;—just as the peasant who was told to dig for hidden treasure, though disappointed of the prize he expected, derived a more rich and permanent treasure, from the digging and fertilizing of the land during his vain search.

large doses—say one scruple twice a-day—combined with opium, to cause it to be retained in the system, corrects the condition of the liver by emulgizing its ducts, unloading its congested or over-gorged vessels, removing undue determinations of blood to its yielding texture, promoting the healthy secretion of its peculiar fluid, and thereby resolves Pyrexia. As soon as ptyalism takes place, the dysenteric symptoms disappear, and the appetite gradually returns. Upon the whole, my own experience, as well as that of some others who served on this expedition, warrants a far more certain expectation from this mode of treatment than from the alternation of purgatives with astringents, or any other heretofore in use.—I must here observe, however, that I by no means go the length of saying that dysentery in our own climate always requires the excitement of ptyalism by mercury for its cure; because with us it is almost always a slight disease, and, compared with the fell and fatal form of tropical flux, might be termed the “spurious dysentery.” In ordinary cases, therefore, to push mercury the whole length of salivation, would be merely substituting one ailment, and that perhaps a more troublesome one, for another less so: (for let it ever be remembered that ptyalism is not without its inconveniences, and sometimes not without its dangers, as I myself have seen;) consequently in such instances, if we equalize the circulation by the warm bath, a purgative, and a sudorific or two, we shall generally find the disease yield. Frequent discharges of slimy mucus, attended with tormina, tenesmus, and feverishness, though

designated by the general name of dysentery, are, in this country, often dependent merely on aerial vicissitudes and consequent suppression of the cuticular discharge, and differ widely both in their cause and character from the *true* dysentery of warmer, but less salubrious regions. But even in this climate, I contend, the principles of cure here laid down will apply with utility, and that in cases which resist the more ordinary treatment, calomel given in larger or smaller doses (according to circumstances,) will be equally beneficial as within the tropics, provided the patient be always kept in a room whose temperature is between 60 and 70.

I have no hesitation in affirming that at New Orleans the success of the treatment by calomel was far greater than that by the usual mode, and I shall here relate a fact which may be regarded as decisive of the rival merits of the two methods of cure. The *Cydnus* frigate, in which I served, remained in the Gulf of Mexico, after all the rest of our force had retired. From the large expenditure of calomel, I at last had none left, and there was not a grain to be procured.—At this time I had several cases of dysentery, which, from necessity, I was obliged to treat, for several days, on the *old* plan, by neutral salts or oleum ricini alternated with anodyne sudorifics, rhubarb, diluents, *mistura eretacea*, &c. One case was, indeed, of so bad a type that I had made up my mind for its ending fatally. Luckily, however, our arrival at the Havannah enabled me to procure a supply of good calomel; and I immediately commenced with ten-grain doses thrice a-day. *Next morning* the

patient was better; had passed a more tolerable night; had less tormina and tenesmus, and a clearer tongue. I increased the dose to one scruple night and morning, and thenceforth his improvement was perceptible from day to day. The pyrexia soon abated, and, in ten days, his dejections from being green and foetid, had recovered the natural yellow colour or nearly so. No complaint remained but a sore mouth. This patient, like most of the others, had been very liberally bled at the onset of the disorder. He is now living (so far as I know), and is an example of the superior efficacy of this mode of treatment.—The above is merely one of many instances where I have seen calomel work rapidly, and like a *charm*.

To prove with how little apprehension calomel may be given to persons of all ages, I may state that to a boy of 14, *one hundred and fifty-two* grains were given during the acute stage of a most dangerous attack of Dysentery, before his mouth became fairly sore!! He fully recovered.

Though mercury had, in this manner, such commanding influence over the disease, still experience here was not always uniform, for there were several vexatious instances where it failed. I do not speak of the fatal cases, of which, unhappily we had fifteen (for in them neither laxatives, astringents, fomentations, blisters, opiates, mercurial frictions on the abdomen, nor calomel pushed to salivation, ever were able to keep off the unhappy event), but expressly of those few instances where the patients, after being apparently cured, re-

lapsed without any assignable cause, or where ptyalism mitigated the symptoms somewhat—perhaps even suspended the disease entirely until the mouth was well, and then it returned with much of its original violence. The disease thus ran into the chronic form, and harrassed the patient for weeks or even months—with the various symptoms arising from a weak irritable condition of the primæ viæ, irregular hepatic secretion, and imperfect formation of the chyme.—The chief of these symptoms were vomiting after meals, night sweats, febriculæ, watching, arid skin, pains in the lower belly, occasional tenesmus, frequent costiveness, followed by spontaneous diarrhœa and discharges of blood, attended also with frequent prolapsus ani and difficult micturition.

In conducting the cure, very delicate management was requisite;—in fact the disease required rather to be led than driven. A strictly regulated diet, and the use of flannel next the skin, were of the highest consequence. At the same time the patient was put under a gentle and gradual course of calomel, taken three or four grains morning and evening, and rubbing in a portion of mercurial ointment on the belly and right side. Laxatives and astringents were employed occasionally, but, above all, the greatest use was made of opium, both internally, and locally per anum, and it really effected most conspicuous benefit. Sulphate of zinc I now and then tried; but from the nausea which it excited, even in three grain pills morning and evening, and from its apparent inefficacy in the disease, I should scarcely, in

future, be tempted to give it farther trials. The tonic power of Peruvian bark was very useful both as an astringent to the bowels, and as a restorative to the whole system. When the mouth was recovered from the first gentle course of mercury, if the complaint had not yielded, I did not hesitate to use calomel again and again in the same gradual manner, till the gums were repeatedly somewhat affected, and then gave tonics as before. This assiduous perseverance, and the patient attention which it implied, I am happy to say, were well rewarded—many patients were thus recovered from a state—not hopeless indeed—but very precarious, and were re-established in firm health.

It is worthy of remark that relapses in this disease are, more than in any other I know, peculiarly frequent and fatal. Most of the deaths occurred in relapsed cases. In one instance a patient relapsed thrice, and the third was more untractable than the preceding, in him a large abscess sprang up in the epigastric region towards the close of the disease, and burst—discharging profusely bloody and bilious sordes, evincing that the abscess had its radicle in the liver, as dissection afterwards more clearly proved. In two or three instances, the belly, during convalescence, became tumid and tense—and remained thus, for a considerable time after their recovery from dysentery. This tumefaction the patients attributed to the state of their liver, and believed themselves to be “Liver-grown,” as they expressed it; but from the spontaneous and often sudden disappearance of this peculiar symptom, I am rather

induced to ascribe the distention to the secretion and extrication of flatus, from the weakened villous coat of the intestines, and from its accumulation in their convolutions and in the cells of the colon.

I never had any reason to suspect this disease, or the pyrexia which ushered it in, and attended it, to be in any measure contagious; inasmuch as it did not appear indiscriminately, or spread from man to man by communication; but was entirely confined, both primarily and ultimately, to that portion of the crew whom duty led on shore, or who were employed in boats on the river *Apalachicola*. Every boat's crew that returned from such service was sure to bring a reinforcement to the sick-list; and out of six new patients thus added, three would be found labouring under ardent fever—for the weather was by this time hot,) and the remaining three under dysentery of the above-described type. From this fact, repeatedly and constantly observed, I am induced to draw the conclusion that both these complaints are excited by one and the same special miasma; for, of a given number of men taken ill in consequence of exposure to the predisposing and exciting causes, it seemed as uncertain as the toss-up of a half-penny whether the one or the other of these diseases would develope itself in an individual or individuals so exposed. This, however, I advance rather as an opinion countenanced by facts, than as being in itself a fact; for I am well aware of the weight of authority that is against me on this point, and must confess that my means of observation have not been sufficiently extensive to warrant a *positive* induction.

I before mentioned that besides dysentery, many cases of intermittent fever and scurvy occurred; but on these I need not detain the reader with any remarks. Here, therefore, the detail of this season of peril and pressure closes.—It commenced about the middle of January, and its painful duration was upwards of two months. During the last week of March and first week of April, the main part of the expedition finally left those shores; therefore, the observations I am about to offer on fever, apply less to the armament in general, than to the force (chiefly naval) that was obliged to remain in the Gulf of Mexico for several weeks after the rest had proceeded home.

The frosts and cold rains which had lately prevailed on this coast were now at an end, and the temperature mounted rapidly to the average standard of the torrid zone. During April and May, the thermometer was seldom below 80, and often, indeed, rose much higher. This greatly-augmented temperature soon began to tell on the people, and gave rise to many cases of cholera, and of ardent fever,—the latter entirely confined to those who had been serving on shore and exposed to the sun, night-dews, and miasmata, or been pulling in boats on the coast or in the rivers. I have already remarked that of the men so circumstanced some were affected with fever and others with dysentery, according as accidental causes, or peculiar idiosyncrasies of the patients' constitutions happened to determine. Of cholera, not one instance, so far as I am aware, proved fatal; large doses of calomel and opium, and plenty of mild

diluents, constituted the whole of the treatment. In ardent fever, however, the success though great, was by no means so uniform I here propose to throw together a few desultory remarks on this much-agitated disease; to treat of it circumstantially, even were the limits of this communication to admit such detail, would, after the excellent works, and smaller though very able monographs lately published on the subject by Dr. Bancroft, Dr. Dickson, Dr. Fergusson, and others, be entirely a piece of supererogatory labour.

In the Gulf of Mexico, the features of this fever were precisely such as I have been accustomed to see in the Causus or yellow fever, so well known in other parts of this great western archipelago. It had the same premonitory and leading symptoms, the same proneness to excessive arterial action, irregular local determinations, and topical congestions of blood in the contents of some of the great cavities, with the same rapid and decided tendency to death. It was, indeed, a most formidable disease, and verified all that has been written about its danger. In the milder cases, one in five or six is about the proportion of deaths, but, in the highest grades, if one half survive it may be considered success.

From my rating the proportion of deaths so high, let it not be inferred that I am unacquainted with the published accounts of unusual success in treating this disease, which have from time to time been offered to the medical public. We have all read of a great number of cases of this fever being cured by the cold affusion, and of a still greater number being treated by blood-

letting and purgatives, with few or no deaths whatever. But little does he know of the disease who shall ascribe this high success to superiority in the plan of cure; because it has been found, over and over again, that the very same remedies in the hands of practitioners, of talents not inferior to these fortunate individuals, have been followed by results by no means so felicitous. I am quite certain that every discerning reader will draw the conclusion—and it is a conclusion which must gladden the philanthropist—that in the West Indies the epidemic of each year is not alike in severity, but that, on the contrary, in the very empire of that fatal disease, which is continually spreading mourning over almost every family in Europe who happen to have cherished relatives in that insalubrious clime, there often prevails a fever which is neither untractable nor destructive; and that *its* diminished intensity sufficiently accounts for the diminished mortality.

Modern medicine has nothing of which it can boast with greater justice, than the improvement of late years introduced into the treatment of this disease;—an improvement which has apparently given more enlarged views of febrile diseases in general, and communicated an analogical boldness to the treatment even of European fevers, which it never had before. The contrast *abroad* betwixt the present and “the older time” is sufficiently striking. The imaginations of professional men in tropical climates, were formerly subdued, and their exertions over-awed by the scholastic doctrines of “debility.” Systems of nosology had been pleased to

style the disease in question "typhus Icterodes,"—consequently, active depletion was carefully shunned. The practitioners stood comparatively idle during the early stage, cogitating about the "vis medicatrix naturæ," and cautiously prescribing his febrifuges his James's powder, and his calomel. The disease, of course, *took its hue* from the species of treatment employed at first. The neglect of evacuations allowed the excitement to riot and revel unchecked;—hence came petechiæ, vibices, hæmorrhages, and the rest of the direful consequences of over-action; then, indeed, the disease was pronounced "malignant," "pestilential," and highly "putrescent," and the golden opportunity arrived for throwing in (as the phrase is) his bark, wine, and opium, against that debility about which at a wrong time, he was over-solicitous.

That cabalistical word *typhus* I verily believe, has slain its thousands and its tens of thousands, from the erroneous hypotheses which are indissolubly associated with its very sound. Every body is now convinced how improperly the term is affixed as a cognomen to the endemic fever of the West Indies;—that it is applied with more propriety to the majority of fevers in *our own country*, is to me by no means clear. While I acknowledge that in the *made-up* constitutions of artificial life,—amidst the squalid dregs of the population of a crowded and high-vice'd metropolis—some cases of fever occur where the brain labours merely through sympathy with the stomach and other chylopoietic organs, and where the lancet, for several reasons, is unnecessary or inadmis-

sible—still, in by far the greater part, I suspect the reaction is sufficiently violent, and the determination to the contents of the head and belly sufficiently marked, to require, and to be greatly benefitted by, blood-letting either general or topical or both. The fever, however, is apt to be hastily pronounced typhus, and, this name once given to it, inert treatment is the usual consequence; for, in the minds of most practitioners (as Dr. Armstrong has well remarked in his incomparable work on Febrile Diseases,) “the word typhus is still too generally coupled with the opinion that the fever which it properly designates, is in all its stages a disease of real debility; though this notion has either been taken on the word of those authorities who for a time gave the tone to medical opinions and theories—or been impressed upon the minds of those who entertain it, from a contemplation of the disorder wholly limited to its advanced periods.” To be sure, in the fevers of our climate, the morbid actions are fortunately seldom so concentrated as to resist the subordinate evacuations of purging and blistering; consequently, even under the disadvantages of inadequate treatment, the mortality is not so great as in diseases of a similar character in the western world, where every thing seems to have been fashioned by a bolder and more abrupt hand, and where the phenomena of disease, like the phenomena of external nature, are upon a larger, grander and more majestic scale. Yet, I am convinced, were active evacuations more freely resorted to at the onset of our domestic fevers, not only the number of

deaths would be diminished by the practice, but the sickening spectacle of a lingering convalescence, where the shattered powers of the system can scarcely rally themselves even with all the appliances of permanent and diffusible stimuli, be in a great measure avoided. But I despair of seeing more liberal ideas, and more efficient practice obtain on this point, while the pernicious maxim of Dr. Fordyce—(pernicious from being misunderstood and misapplied)—“*Bonus medicus nunquam sanguinis humani prodigus*”—is vauntingly professed by many otherwise well informed members of our profession.

The same erroneous nomenclature which gave to ardent fever a typhoid type, in all likelihood had a great share originally in producing the notion of its being contagious, a notion which has since excited as memorable a controversy as any on the records of medicine. But the public must already be tired of the dispute, and therefore I shall not enter into it. Indeed it is quite unnecessary, as Dr. Bancroft's triumphant “*Sequel*” lately published, may be considered as having set the question at rest for ever.

I shall simply state, that from my own comparatively limited experience, I have never seen aught to countenance a suspicion of contagion; but, that on the contrary I believe the disease to be strictly endemic or indigenous to tropical countries, or to such countries without the tropics\* as have a temperature, at certain seasons, from 80 to 90, and to be owing to the

\* Thus in March and April 1815, New Orleans was visited by a violent *four or five-day fever* which carried off

diffusion in the atmosphere of those poisonous exhalations which are elicited by the rays of a powerful sun, from marshes—from putrefying vegetable matters, or from the *soil itself* of hot countries. Miasmal poison is one of the most widely diffused causes of disease throughout the whole province of nature; and if northern climates know less of its pernicious effects—they owe this happy exemption solely to the inferior power of the sun's heat in collecting those noxious vapours.

The endemic of the West Indies is, in my opinion, justly classed in the order of intermittents, which are universally believed to be of local origin and non-infectious. On this point, however, I would be understood to speak with diffidence, as I am aware there is highly respectable authority against me.

In this fever, I look upon either the brain, or the stomach and contiguous abdominal viscera as being always the chief seat of disease: for it is on one or other of these organs that the attack first manifests itself, and it is by disorganization in one or other of them that the malady kills. It is not unworthy of remark, that during the summer months, when the weather is hot and dry, I found the cerebral—and in the autumnal months when the season is still hot, but rainy—the gastrie af-

some of the inhabitants, and many strangers. This was merely the usual summer marsh-fever, endemic to the town and neighbourhood, brought on in the present instance, earlier than usual, from the sudden ascent of the thermometer, after the preceeding severe season. The precious seige, and unusual influx of strangers, of course, greatly augmented the predisposition to the disease.

fection, most prominent in the primary stage of ardent fever.

I have never been able to see the propriety of the distinction which authors have drawn betwixt the different gradations of West India fever. Of this, as of all other diseases, every case is not alike severe; yet the most violent they are pleased to denominate *yellow fever*, while those of a milder form are called by the name of bilious remittent. This appears to me a distinction without a generic difference, for these two forms have certainly the same inflammatory character—the same morbid actions—the same tendency to local congestions of blood; and are merely varieties of the same disease—produced by the same diffusible poison—obeying the same laws—only modified by accidental circumstances of predisposition in the habit of the patient, or the strength of the dose of miasmal gas. It would introduce endless confusion into our nosological systems, were the ever varying gradations of severity in any given disease assumed as a sufficient ground for referring it to a new cause, or a new class.

I shall here describe a most fatal variety of this fever, a variety which well deserves to be accurately pourtrayed.—The disease comes on in the usual manner; but from the very beginning, and throughout, the nervous system is the chief seat of attack, and appears to suffer dreadfully. Its susceptibility seems to be greatly increased, while, at the same time, its energy is as greatly diminished; hence it is excited into a degree of diseased mobility by impalpable or incognizable stimuli

which are usually inadequate to produce impressions, and loses in a great measure, its healthy influence or control over the motions, functions, and sensations of particular parts. The patient looks half intoxicated,—he staggers—he pants for breath,—his voice is shrill and tremulous, and his whole appearance betokens agitation inutterable, with a dash of wildness gleaming at intervals over his anguished features, which add unspeakably to the horrors of this death-bed spectacle. He complains of little or no head-ache, but appears impatient and irritable—yet oppressed; and, after the first day, sinks down in bed with a hopeless or careless expression of resignation. The external senses seem torpid, or occupied exclusively with ideal perceptions,—insomuch that he neither sees nor hears what is going on around him without a special effort to look or listen; and even then, he is not unfrequently subject to visual or acoustic illusions.

The empire of the will seems to be overthrown, for there is a singular prostration of the voluntary powers, and such tremors of the extremities that the patient is unable to lift a cup of liquid to his mouth, and, when raised out of bed, cannot stand erect even for a moment. Under such circumstances, if the cold assusion is administered, the shock induced by it is too much for the morbid nervous susceptibility, and increases the tremors to so fearful a degree, that I have more than once been terrified least they should end in general convulsions, and have been glad hastily to desist from its

use, and to substitute sponging with vinegar and water in its stead.

The organic or involuntary functions are not less disturbed. The stomach is *from the very first*, highly irritable, and so continues. There is also a more than usual burden about the præcordia, and such catching in the respiration as caused me to notice dyspnœa as one of the *earliest*, as well as one of the worst, symptoms. The heat of the surface is very great, with partial sweats here and there : the pulse, too, is very frequent (from 130 to 140,) but easily compressible, and, moreover, undulating. I do not know a more accurate term than this last to denote the nature of the arterial stroke ; for it exactly seems as if each unda of blood followed *instantly* on the preceding one, without an intermediate efficient systole or distole of the heart.— When the patient is raised in bed, or when even an inconsiderable quantity of blood is drawn (in the recumbent posture,) the pulse becomes fluttering and innumerable, and vomiting, with syncope, supervenes. Such is the picture of the patient's state from the first hour of indisposition till the third day of the disease :— towards the end of that day, subsultus, coma, and cold extremities occur, and death takes place early on the fourth.

Whenever I have met with this variety, it has proved fatal :— this will scarcely be wondered at, when we view the mixed inflammatory and congestive character of the disease ; and when we recollect that bloodletting and cold affusion (our two most potent remedies,) are

inapplicable in it,—or (which is saying the same thing), can only be very partially and inadequately employed. The peculiarity of this variety consists in the absence of head-ache, and the pressure of dyspnoea and gastric irritability, from the earliest to the latest hour. The vast commotion of the nervous system, too, and unusual state of the pulse, strongly arrested my attention. I was, therefore, very anxious to see if dissection would throw any light on the symptoms.

On examining the stomach I found the vessels on its inner coat much more conspicuous than natural, and filled with dark grumous blood; but without any distinct traces of acute inflammation. In the lungs and other viscera of the thorax and abdomen, there were no appearances of inflammation whatever, and none of congestion, save such as might readily be accounted for by venous gravitation.

In the brain or its membranes I found few traces of undue vascular action save in its basilar portion. *Here* the pia mater was very red, and adhered pretty firmly to the substance of the brain,—and patches of coagulable lymph were thrown out at various points, gluing together the inferior convolutions. The tractus optici were loaded with dark-coloured and apparently infarcted blood-vessels, as were the other cerebral nerves, from the points where they emerge from the substance of the cerebrum, pons, and medulla oblongata, to their exit by the cranial foramina. A table-spoonful of fluid was found in each of the lateral ventricles.

But it was in the cerebellum and medulla oblongata

that the chief morbid appearances were detected: the former shewed a degree of vascularity indicative of high previous inflammation—anteriorly and inferiorly it was covered with a plexus of distended vessels: and the latter, together with the pons varolii and medulla oblongata, was enveloped by tenacious thready layers of fibrin which could scarcely be removed without injury to the medulary substance underneath. About two tea-spoonfuls of serum also were found effused in the fourth ventricle; and the whole of the nerves arising from the medulla oblongata, but especially the par vagum, were found of a purplish colour, evidently from the ramification of minute congested vessels. All the veins and sinuses of the encephalon were greatly distended with blood.\*

Having found these appearances in only two cases, it may appear hasty to attempt any thing like an induction from them, yet, wishing to draw the attention of future observers to this matter, I am inclined to hazard an opinion—speculative certainly, yet not altogether improbable,—that the type and the relative danger of this fever are regulated by that portion of the center of the nervous system which shall happen to be the chief seat of inflammatory determination and sanguineous congestion. Conformably to this view, it might with

\* I am very sorry that at the time when these cases occurred, I was unacquainted with the interesting researches of Dr. Sanders of Edinburgh, into the state of the spinal marrow and theca vertebralis, in general fever; and with the views which he so ably expounds. I now regret in vain the opportunities that then escaped me of investigating this important pathological point.

some shew of reason, be inferred that the danger is less when the anterior and superior lobes are chiefly affected, (though the disturbance of the sensorium may be greater;)—but that the danger is imminent, and death scarcely avoidable, when the base of the brain, the origin of the nerves of automatic life, and the medulla oblongata, are implicated in inflammation.

How far the appearances on dissection account for the preceding symptoms, is a question which cannot be satisfactorily answered in the present state of our knowledge of pathological physiology: but perhaps it would not be refining too much to suggest that the morbid vascularity of the eighth pair of nerves (which, with the great sympathetic, supply the lungs, heart, and stomach),—the inflammation of the medulla oblongata, and the compression too, of this important part from the effused serum, caused that imperfect operation of volition on the parts subject to the will,—that early and permanent debility of the vital functions, that dyspnœa, fluttering pulse and vomiting, which characterised the cases from the first moment of attack.\* If

\* These speculations derive a singular degree of countenance from the results (since detailed to me by my friend *Mr. Hasting's*, one of the Presidents of the Royal Medical Society of Edinburgh), which have been observed to follow the dividing of the eighth pair of nerves, in the lower animals.—This gentleman, no less distinguished for his talents than for his zealous and unwearied prosecution of physiological experiment—has found that, on cutting the par vagum, the process of digestion is completely suspended, and such irritability of stomach induced, that the animal rejects by vomiting all sorts of food or drink. The œsophagus soon becomes paralyzed, and the deglutition is thenceforth impracticable.

I mistake not, Galen has somewhere asserted that inflammation of the cerebellum is always accompanied with an undulating pulse:—it was, I believe, this hint, casually stumbled upon, that first led me to examine this and the contiguous portion of the brain with more than ordinary care.

Whatever may be thought of the above opinions, I am satisfied of the accuracy of the fact that early dyspnoea, and an undulating pulse—viewed merely as pathognomonic signs—always indicate extreme danger in this disease; indeed when the more ordinary forms of the complaint prove fatal, these symptoms always precede the unhappy event.

Of the general treatment of the endemic fever I come now to speak. Regarding this disease to be, to all practical intents and purposes, inflammatory, and the affection of the head to be primary and essential, (which is evinced by head-ache, intolerantia lucis, and red eyes, occurring as the earliest symptoms, for the eye is here generally an index of the state of the brain, in the same manner as the tongue is of the state of the stomach), I have never hesitated to push evacuations to the utmost. Bleeding from the arm, or frontal branch of the temporal artery was always my first step:—and large and repeated bloodletting during the early stage,—(the earlier the better)—I consider the great

The action of the heart, also, is greatly weakened and disturbed: and there is a remarkable dyspnoea, which soon increases to laborious breathing, and is followed by the effusion of bloody frothy serum into the air-cells of the lungs, before death. There are also observed reddish patches on the surface of the lungs.

palladium of the patient's safety. During the first twelve hours of the disease I have generally drawn from 50 to 60 ounces; but there can be no general rule as to how many ounces should be taken; we ought to bleed to syncope, and bleed repeatedly, in order to break the morbid association of the symptoms, and induce a speedy remission: for I am convinced that it is not only by its unloading the vessels, but by the *shock* (I cannot express it in philosophical language,) which it gives to the whole system, nervous as well as vascular, that bloodletting affords the magical relief I have so often witnessed. It is also chiefly by the inexplicable changes implied in the word *shock*, that cold affusion operates advantageously; for in tropical climates where the temperature of sea-water is generally from 80 to 82, its refrigerating power must be much abated.

The state of the pulse is less to be regarded than the urgency of the other systems; even when the former is thready, spreading, or undulating, the latter often imperiously demand renewed depletion; and their demand must be complied with at all hazards. In a disease like this, where the danger is frequently imminent in twelve or fifteen hours, it is often amazing how much its apparent character may be altered by active depletion. From a fever of the highest grades management will change it to one of the second or third order. To secure every chance of such success, no attention must be spared; the patient ought to be visited every two hours; and, whenever the febrile symptoms get up anew, new exertions must forthwith be made to subdue them.

It is a Herculean disease, and, without that almost omnipotent remedy—the lancet, we might be said to encounter it unarmed; for all other means are but of secondary force. It requires all the vigour and activity imaginable, else it will gain ground on us with rapid strides. It is indispensable to bleed again and again: this is the main stay—the sheet-anchor of Hope. Without it many—very many—must infallibly be lost; would that I could say that by it *all* are saved! But when it is recollected how often inflammation, even of parts not vital, foils all our exertions at resolution, it cannot be wondered at if bloodletting is often incompetent to remove inflammation of the brain or abdominal viscera—organs endowed with high sensibility, extensive sympathy, and functions whose right performance is essential to life

I cannot undertake to go minutely into all the happy results of this decisive practice;—it is sufficient to state the following:—Patients who have been ill of fever are apt afterwards to die of dysentery, or chronic complaints; though thirty-seven of the crew of H. M. S. Cyndus laboured under ardent fever previously on the Jamaica station, and though the ship afterwards suffered a good deal from dysentery in the Gulf of Mexico, none of the thirty survivors from the fevers died of the dysentery or of any other subsequent disease. It is therefore another praise of the depletory practice that it leaves no visceral obstructions to a source of after-danger. There is a farther indirect advantage arising

from this method of treatment: in the early stage of ardent fever there is often a torpor of the bowels, which renders them insensible to the stimulus of purgatives. When bleeding is practised largely, either while the blood flows, or immediately after recovery from syncope, the cathartic previously given produces urgent calls to the seat, and full evacuation. Moreover, venesection seems to me to render the body more susceptible of the action of blisters.

It is almost unnecessary to point out the advantages of this practice, as it now obtains so universally. I have felt by experience that it is a matter of great nicety in the treatment to say when active evacuations ought to be laid aside. The judicious decision of this point requires considerable *tact*, and a previous pretty extensive acquaintance with the varied and successive phenomena of the disease.

Purging—free purging—I have not hitherto mentioned, the necessity being so much a matter of course. A stimulus ought to be kept up constantly on the bowels, if with no other view than to relieve the head. Blisters and the cold affusion I have found to be valuable auxiliary remedies: I call the latter by the subordinate epithet of *auxiliary*; for to attempt as some have fondly hoped, to extinguish this most violent fever by *it*, is (hyperbolically speaking,) like attempting to extinguish the crater of Mount *Ætna* by water. It, however, reduces heat and invites sleep, and—what is of very great consequence—by its bracing power on the skin, it gives tone to the stomach, lessening nausea, and

checking vomiting, a thing so much to be dreaded in every stage of this disease. With the latter view, also, I have found small oft-repeated doses of calomel, and saline effervescing draughts, highly useful. These last I have generally prepared with the carbonate of magnesia instead of the carbonate of potass, using always the lime juice somewhat in excess. The supercitrate of magnesia thus formed seems to possess both refrigerant and purgative virtues superior to those of the citrate of potass.

These remedies are mentioned in succession according to their relative efficacy; but, in actual practice, their application must be contemporaneous. Bleeding, purging, shaving the scalp, cold lotions to the head, and general refrigerations by the cold bath, must be drawn up together in array against the disease, and must make a combined attack. A first, a second, or even a third disappointment must not rob us of our perseverance. Courage and constancy will, in the end, often succeed against great seeming odds. In short, the violent excitement must be got under by all means, ordinary and extraordinary.

I have never trusted to calomel as a *sialagogue* in this disease to the exclusion of depletion. The confidence in the specific powers of that medicine has, I believe, now faded away before the better lights and the more speedy results which the latter practice has afforded. The exclusive exhibition of calomel may therefore, be considered to have been dropped, from a tacit conviction of its inadequacy. But, very recently,

this mineral has been greatly extolled and recommended in conjunction with, and as subsidiary to venæsection, in the cure of ardent fever, by some whose talents and authority deservedly possess great weight with the profession, and who draw their conclusions as to the superior efficacy of this combination of the depletory and mercurial methods, from long *experience* in the eastern world. While I pay merited deference to experience so much ampler than my own, I must beg leave to say that my habits of thinking do not permit me to care much what is the secondary treatment of fever, provided its primary treatment be conducted on a plan becomingly rational and energetic. As the issue of the disease hinges so much on the method of cure pursued during the first stage, it is on *that* that I am disposed to lay the greatest stress; and I think I am borne out by facts in the assertion that if evacuations have been rigourously employed, and duly persisted in, at the onset of the fever, visceral congestions or other organic lesions of any sort, will be very rare occurrences, inasmuch as they will, for the most part, be checked in their naseent state. Nay—I have often been tempted to think that convalescence went on more rapidly when nothing was given as medicine save an occasional purgative; at first, I was in the habit of giving the bark as soon as a fair remission of the febrile symptoms had taken place; but I was soon convinced that the recovery is more favourable when the stomach is unlogged by this or other tonic drugs. In no case is the “nimia cura medici” apt to do more harm than in

the convalescence from fever. If we keep the patient's bowels open, and, (without regard to his importunities to the contrary,) retain him for a few days longer on *low diet*, nature will generally do the rest.

No doubt, I have seen cases, where, after the subsidence of fever, the tongue continued loaded, the appetite returned not, and there was a sense of fulness under the right ribs. This I attributed to hepatic congestion and torpid secretion: and found a course of calomel pushed to salivation succeed remarkably well in its removal.

To the patients under my care, I have been in the habit of giving three or four grains of calomel after the primary stage of fever, every three or four hours, with a view of deriving from the head and viscera, by keeping up a constant action on the intestinal canal—as also to carry off bilious and other sordes, and to prevent vomiting. I preferred calomel; because, from the precarious state of the stomach, more bulky or more nauseous cathartics could not, in all likelihood, be retained. When low delirium, coma, torpor, or the like, occurred, I have now and then, as a last resource, placed the system under the influence of mercury; but even under these circumstances (though the mouth was fairly affected) I have never been so fortunate as to see it of any avail in saving life.

This medicine is also said to possess the prophylactic virtue of warding off an attack of fever. No one will deny that a mercurial course, by lowering the tone of the constitution, lessens the liability to this as well

as to all other inflammatory diseases; but whether it possess any *specific* anti-febrile power, is a matter of doubt. I have met with some cases certainly not countenancing the existence of such a power; but my experience has not been sufficient to justify a positive opinion on so important a matter: I therefore leave the subject open to future observation.

The eruption on the skin of prickly-heat (*lichen tropicus* of Willan and Bateman,) by some has been regarded as a preventative of ardent fever. But I am sure, from experience, that this is a mere popular error.

It would be easy to extend these remarks on fever to a greater length; but I have confined myself to leading points, and to those opinions of late authors which seemed to admit of further disquisition. Imperfect as this paper is both in point of matter and composition, I am not without hopes that the facts and dissections will be thought of some value, and be duly pondered by the profession. It is only by a candid statement of failure as well as of success, that medicine, which is not (as it has been called) "a conjectural art," but an experimental science, can hope to gain ground—if not rapidly—at least securely. In this point of view, a delineation of disease on a great scale, and a detail of practical facts, can never be wholly useless:—it is only for me to say, in conclusion, that on the various important matters touched on in this paper, I have done my utmost to observe diligently, and report faithfully.

ARCHIBALD ROBERTSON.

March, 1818.



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